

FIG. 1(a)

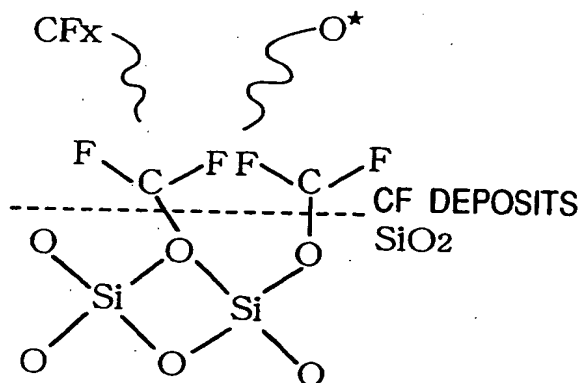


FIG. 1(b)

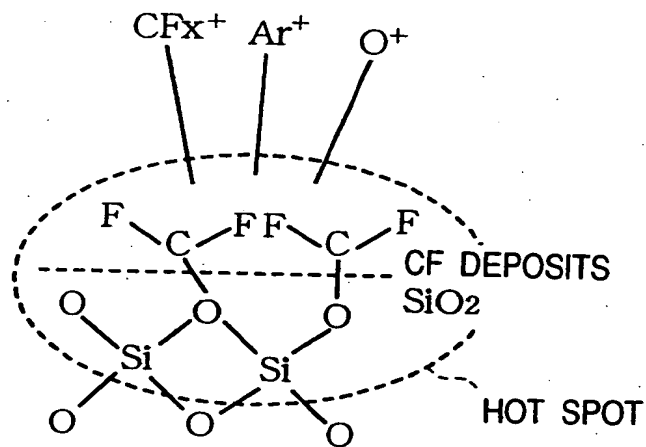
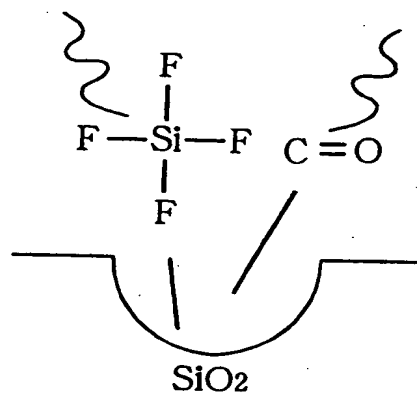


FIG. 1(c)



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FIG. 2(a)

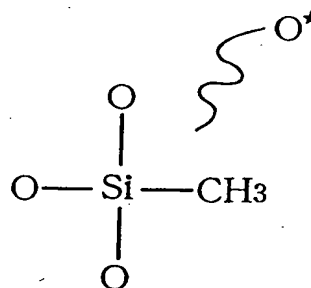


FIG. 2(b)

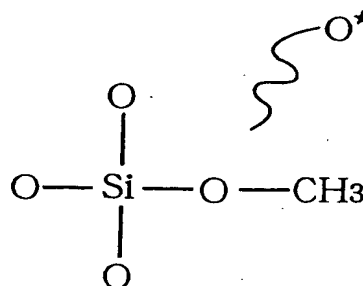


FIG. 2(c)

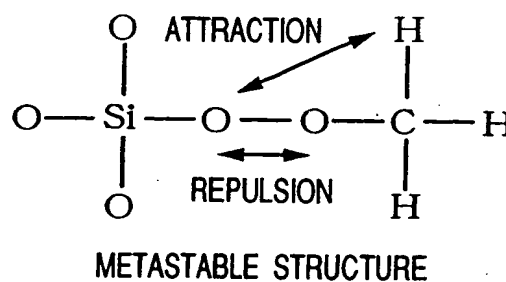
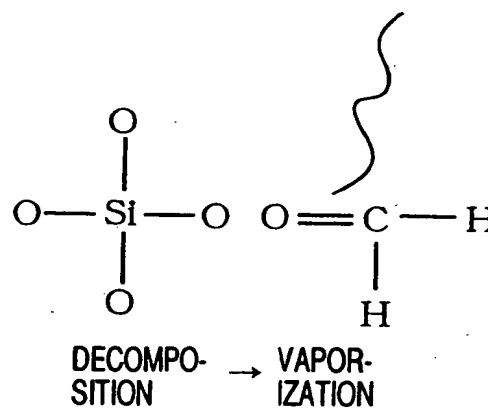


FIG. 2(d)



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FIG. 3(a)

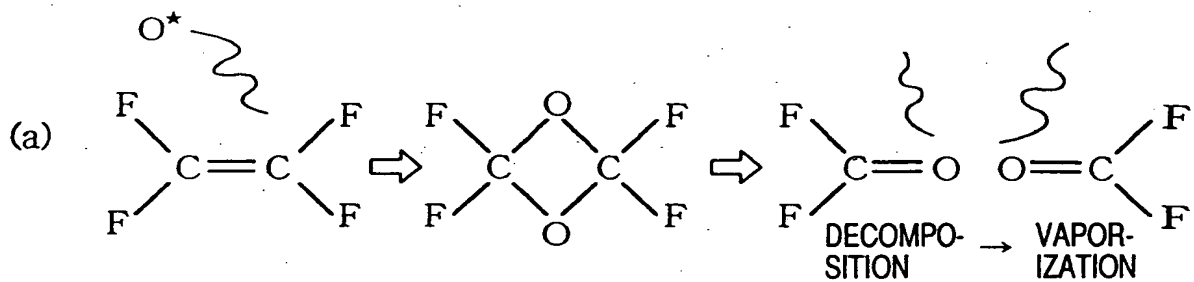


FIG. 3(b)

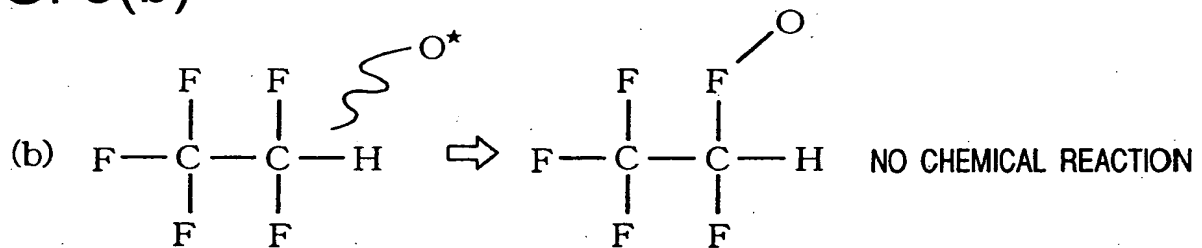


FIG. 3(c)

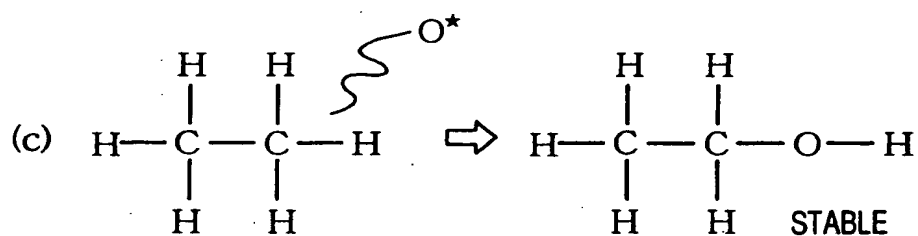


FIG. 4(a)

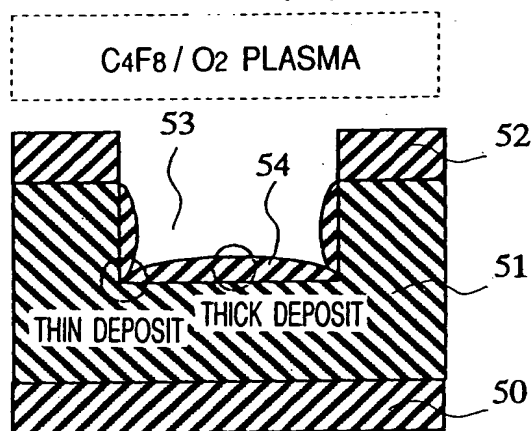


FIG. 4(b)

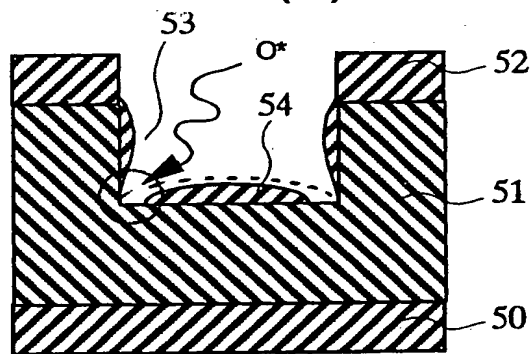


FIG. 4(c)

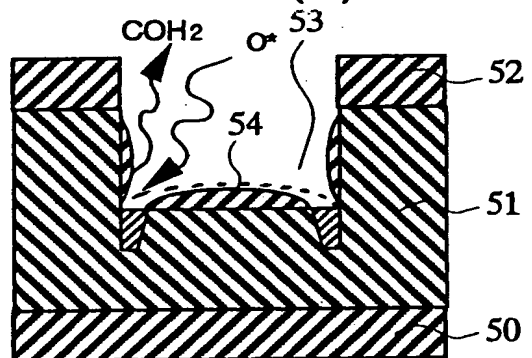


FIG. 4(d)

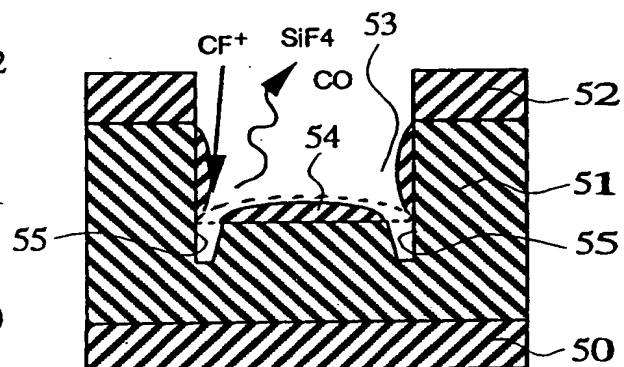
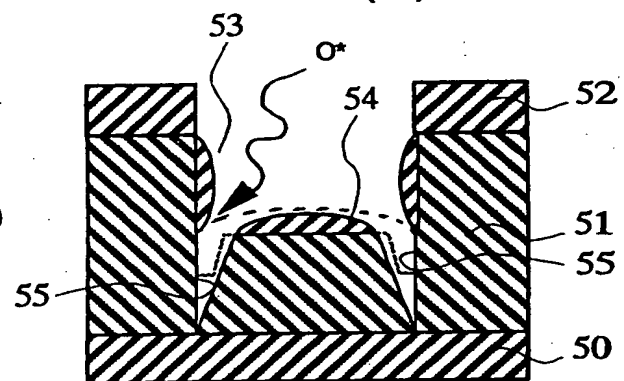


FIG. 4(e)



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FIG. 5(a)

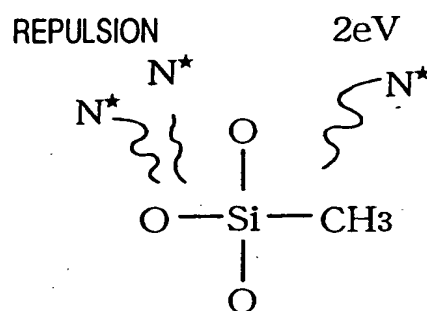


FIG. 5(b)

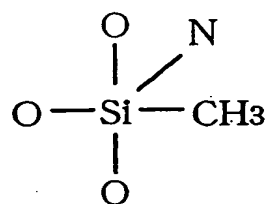


FIG. 5(c)

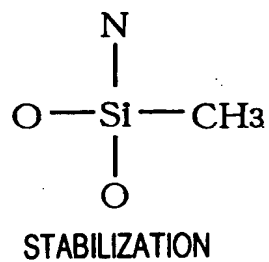


FIG. 6(a)

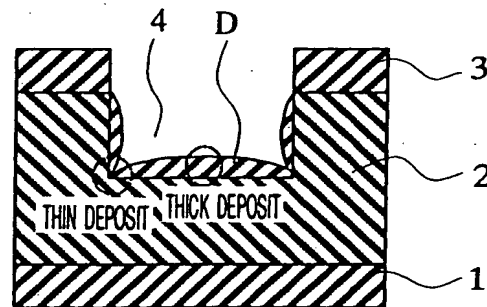


FIG. 6(b)

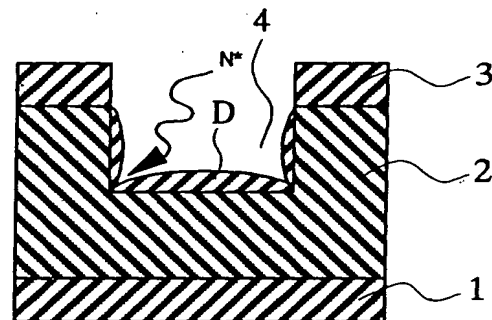


FIG. 6(c)

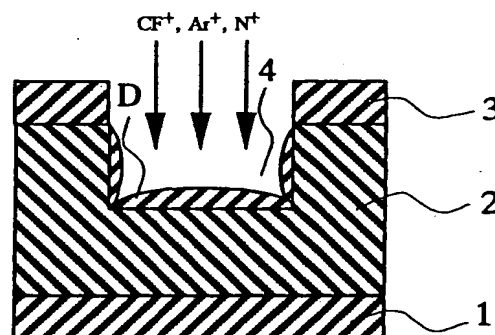
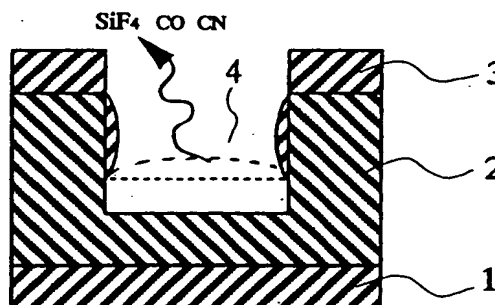


FIG. 6(d)



- 1: INSULATING FILM
- 2: ORGANIC INSULATING FILM
- 3: PHOTORESIST FILM
- 4: RECESS

FIG. 7

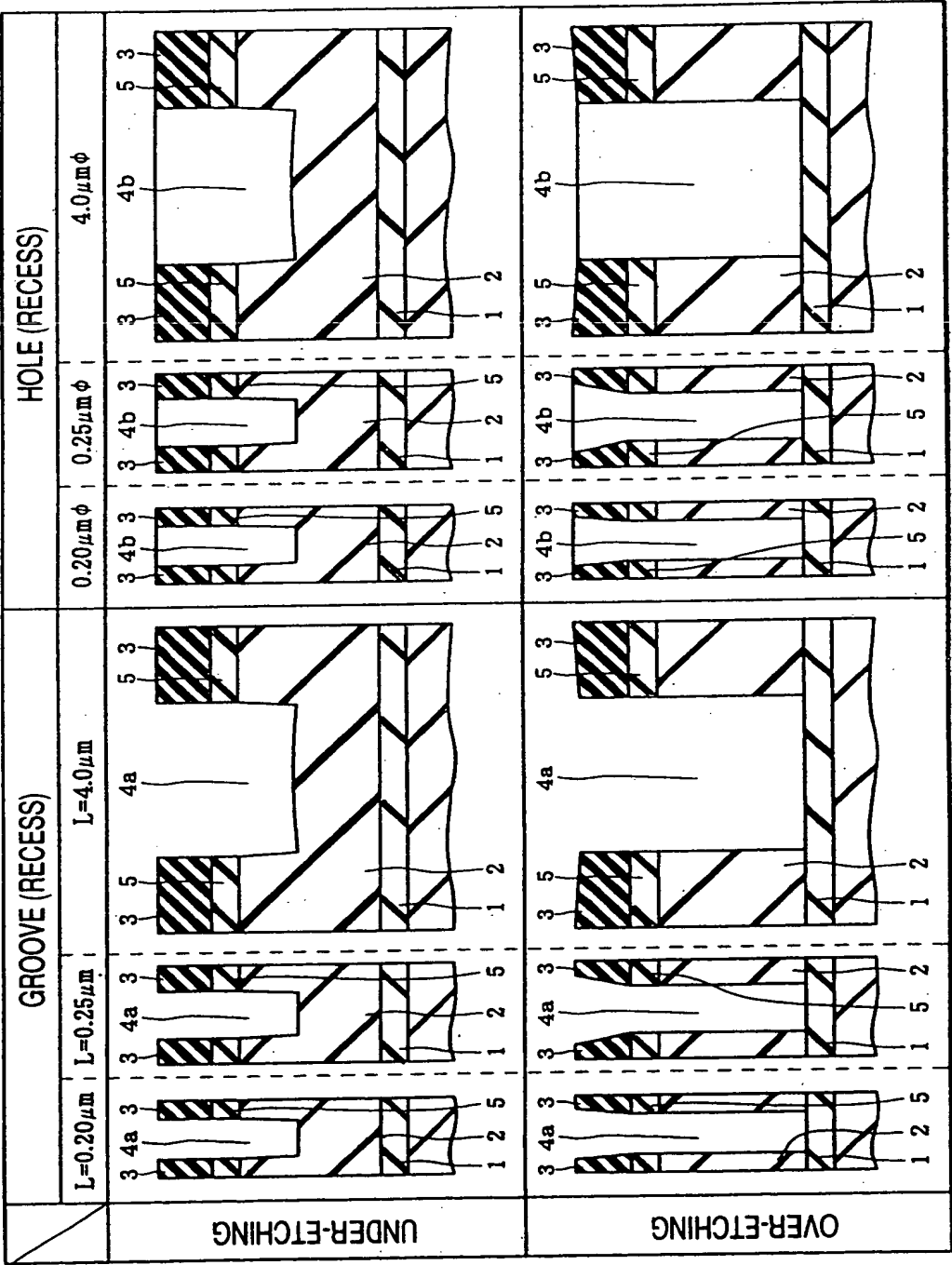
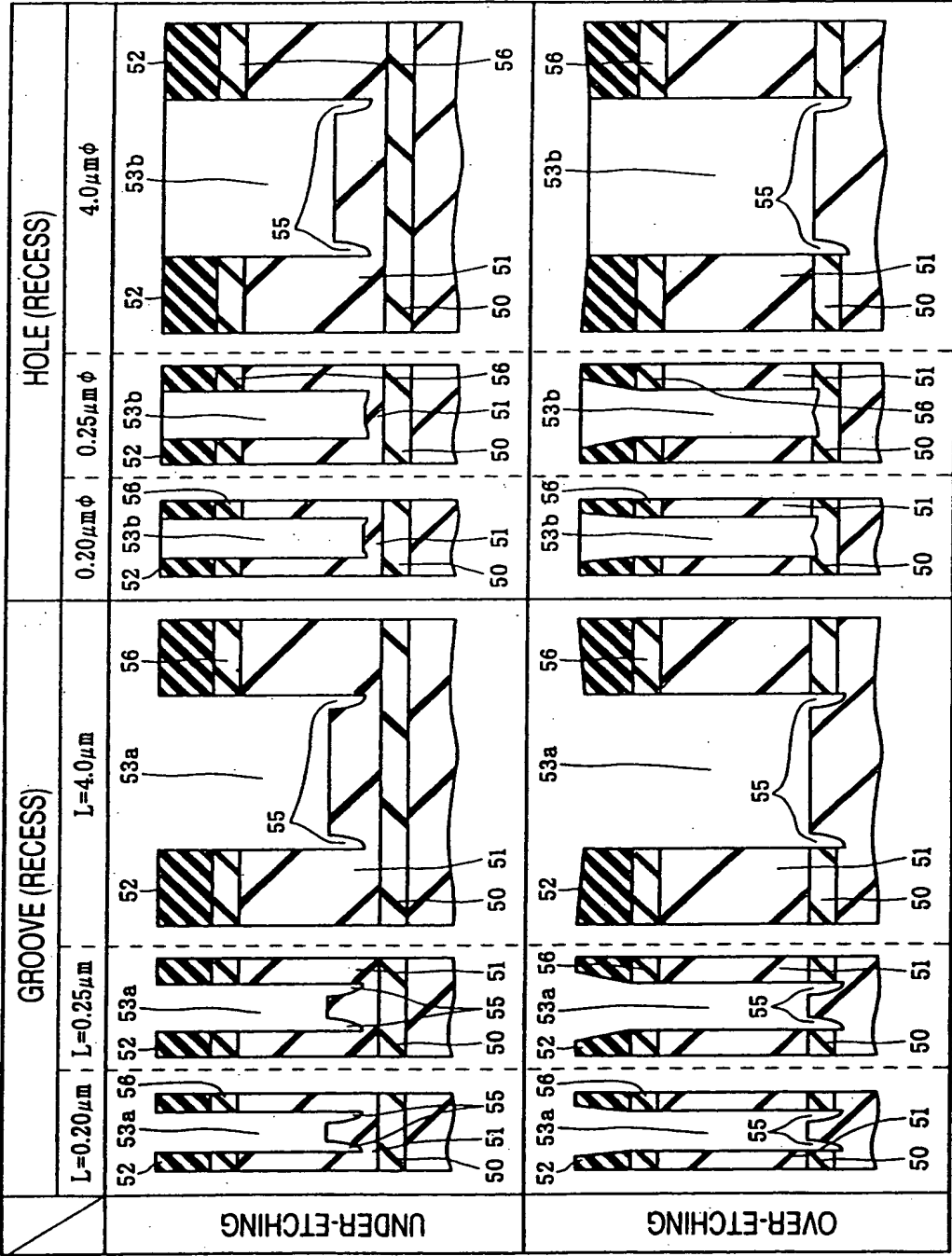
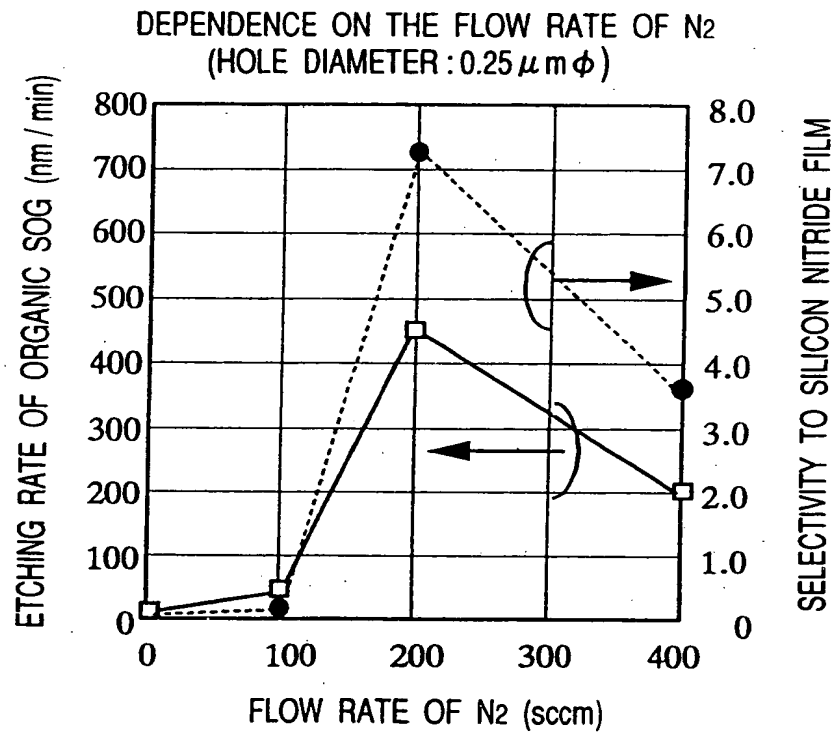


FIG. 8





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**FIG. 9**

- ETCHING RATE OF ORGANIC SOG (nm/min)
- SELECTIVITY TO SILICON NITRIDE FILM

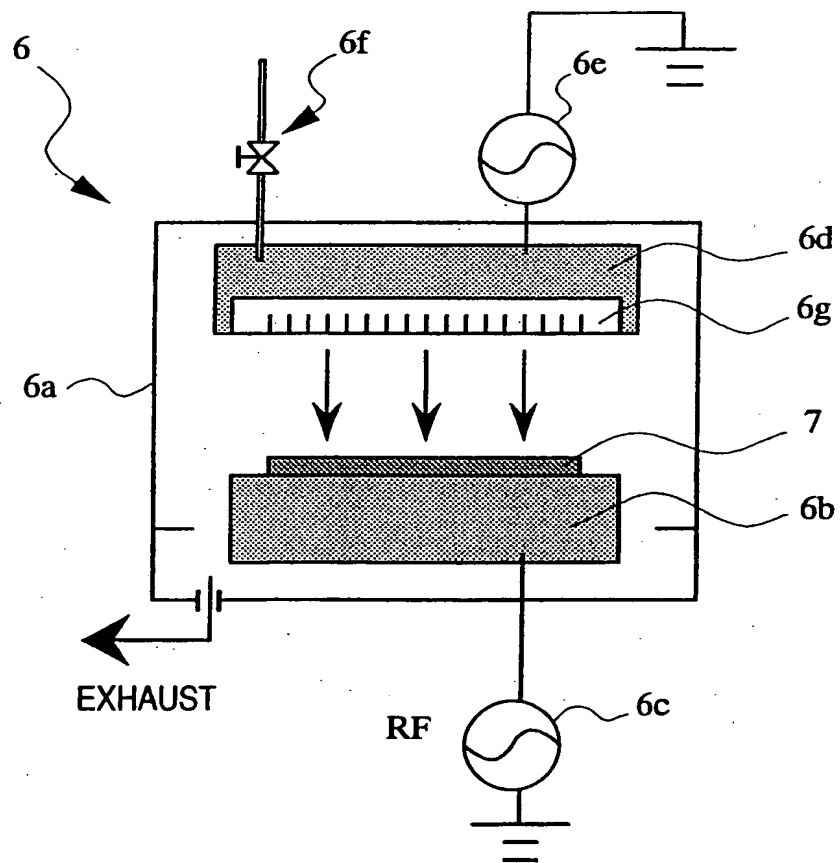
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FIG. 10

	CF GAS ALONE	CF GAS / O <sub>2</sub>	CF GAS / N <sub>2</sub>
ETCHING RATE	X	○	○
SELECTIVITY	X	○ X	○
FORM	△	X ○	○
ELIMINATION PROPERTY	X	○	○
SYNTHETIC EVALUATION	X	△	○

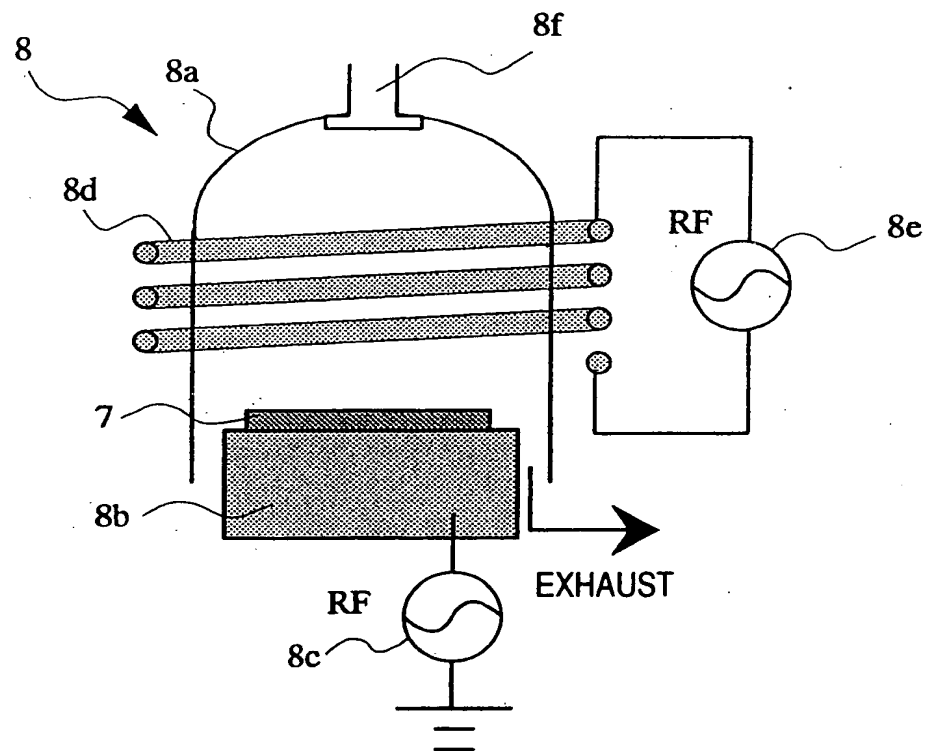
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FIG. 11



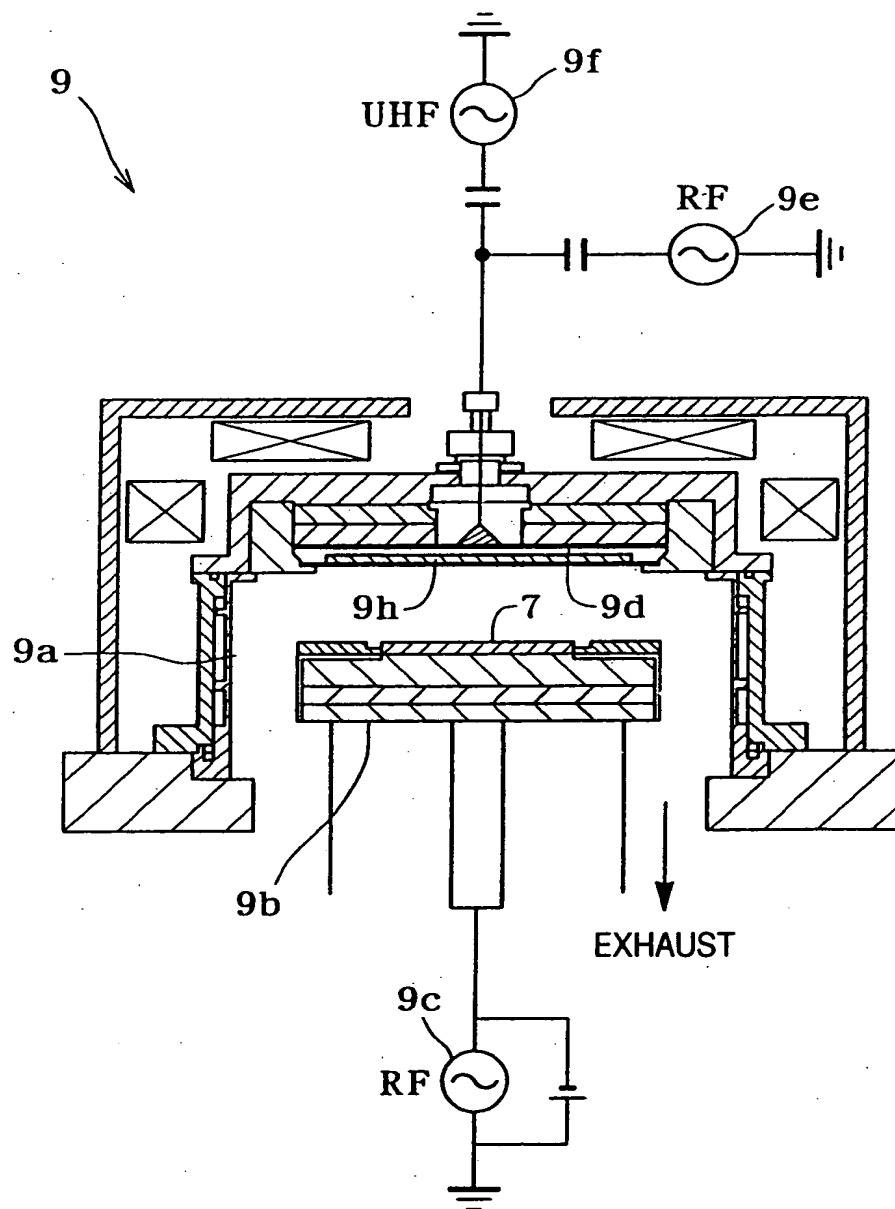
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FIG. 12



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FIG. 13



**FIG. 14**

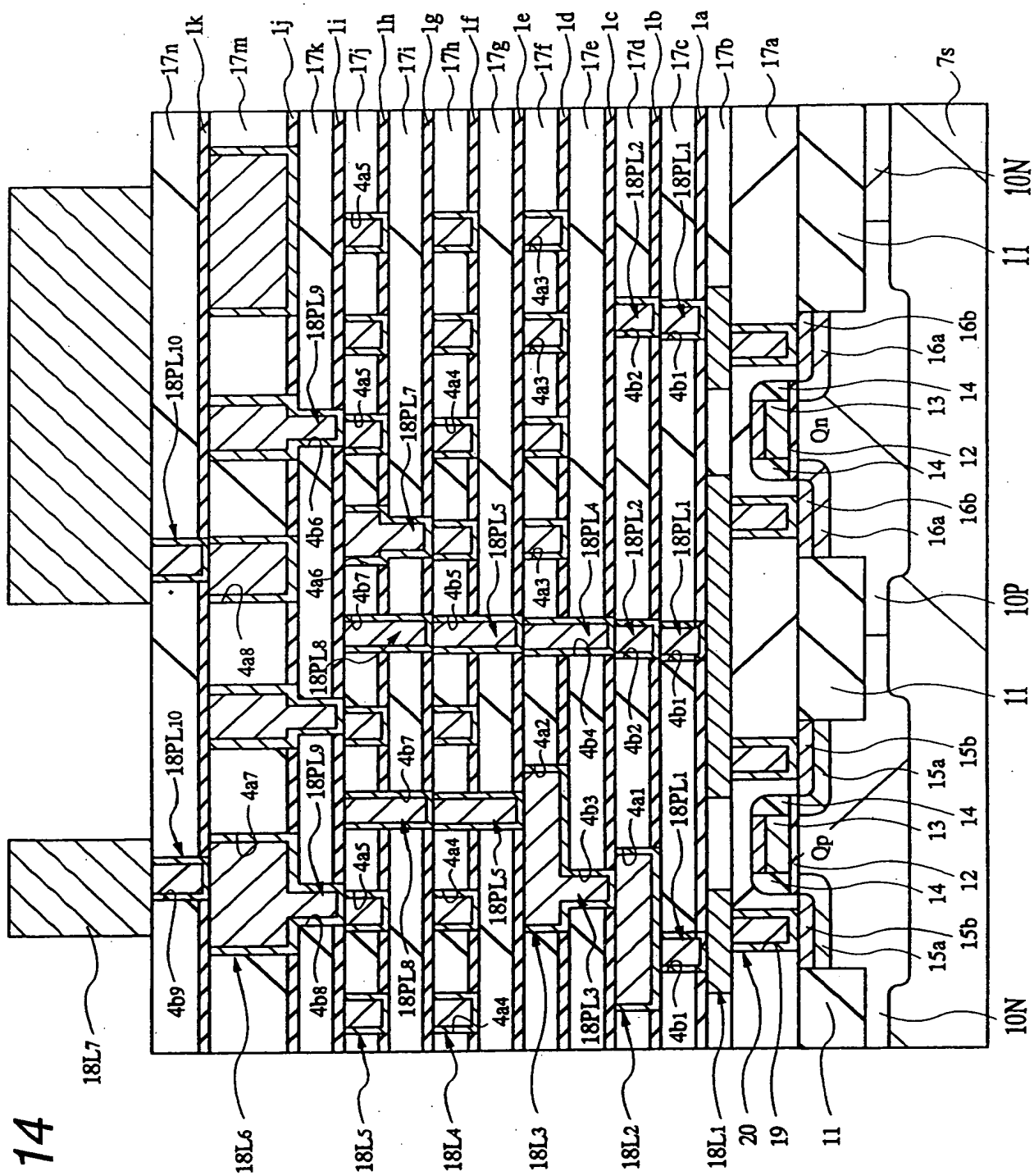


FIG. 15(a)

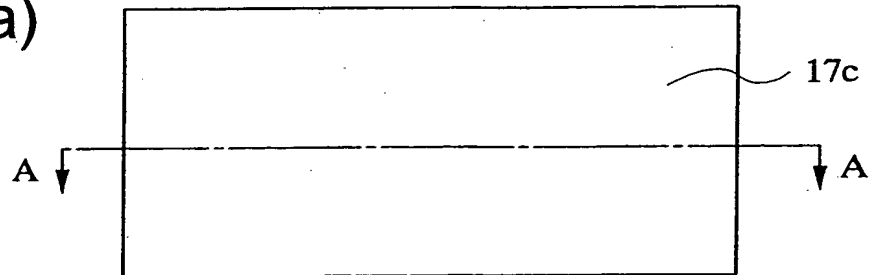


FIG. 15(b)

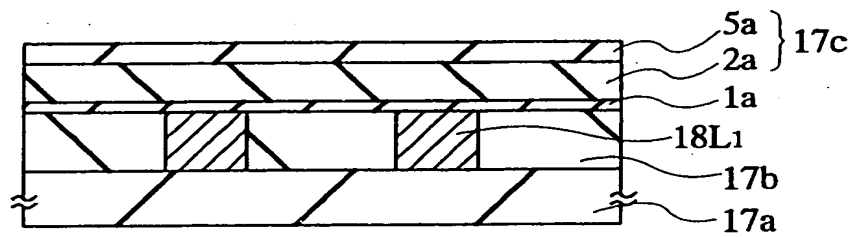


FIG. 16(a)

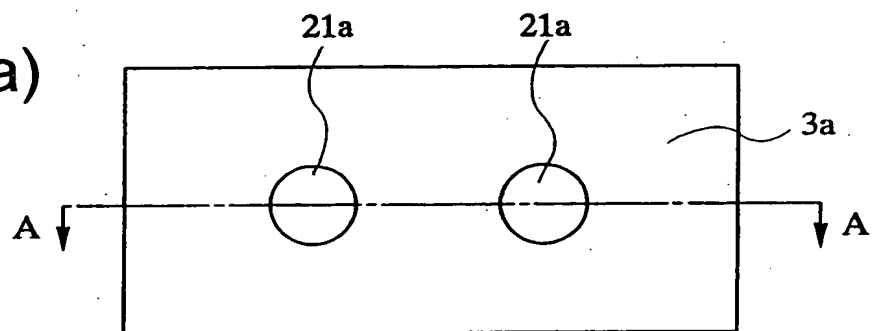


FIG. 16(b)

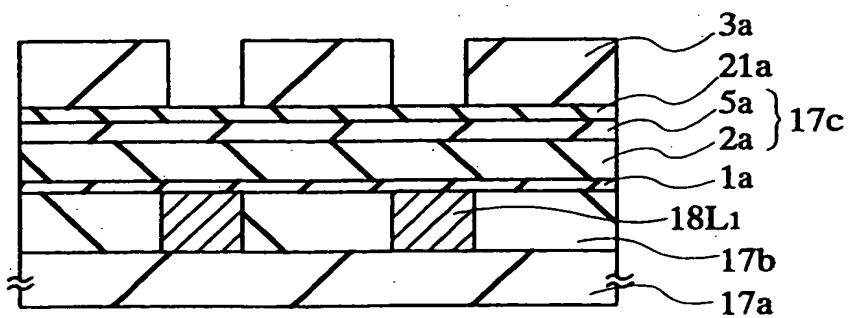


FIG. 17(a)

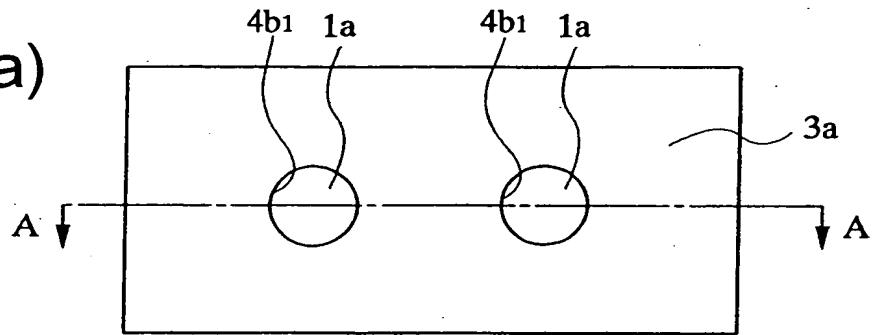


FIG. 17(b)

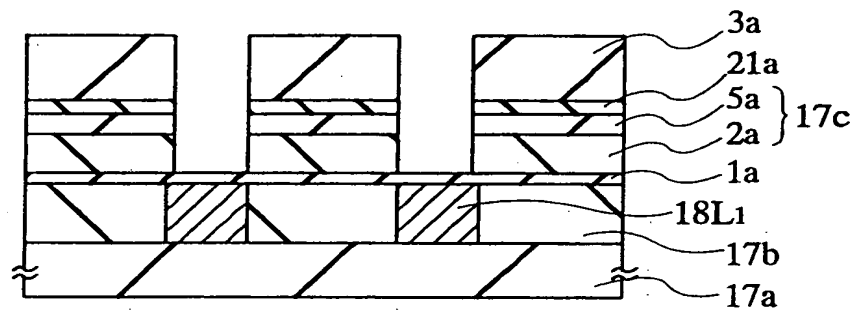


FIG. 18(a)

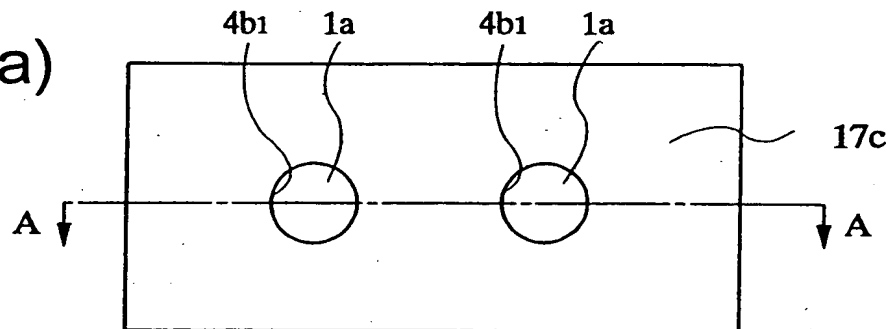


FIG. 18(b)

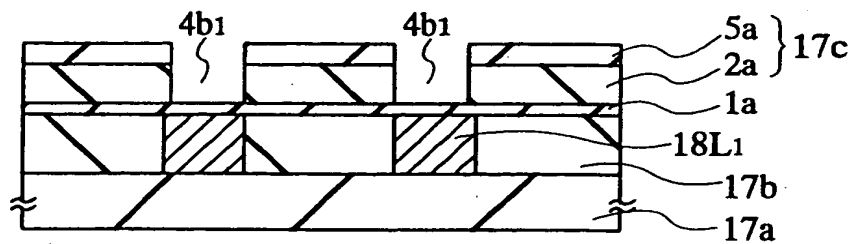




FIG. 19(a)

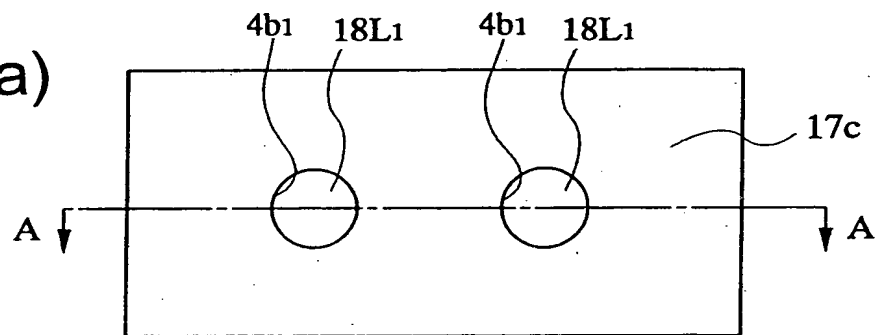
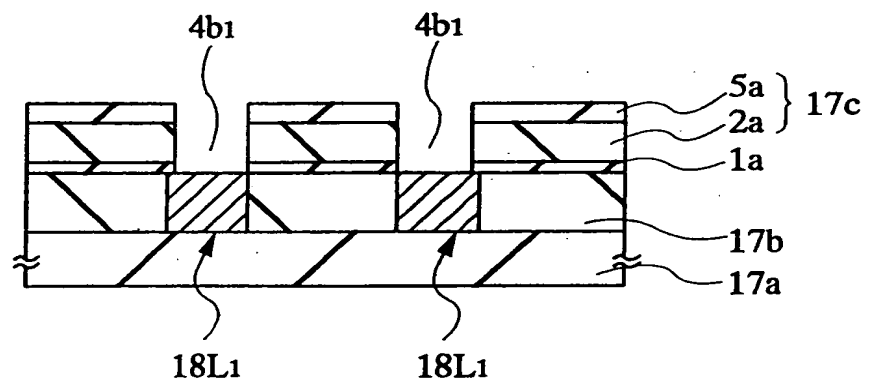


FIG. 19(b)



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FIG. 20(a)

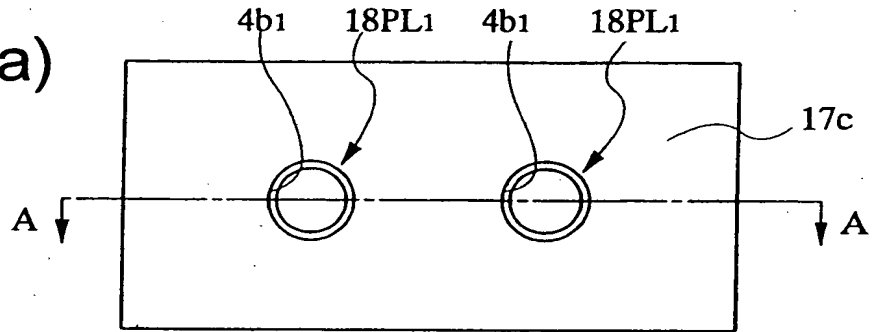


FIG. 20(b)

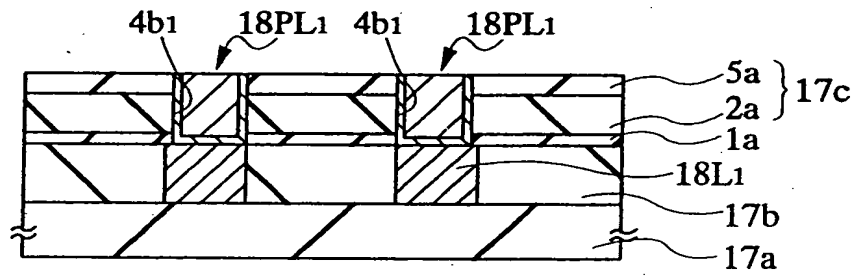


FIG. 21(a)

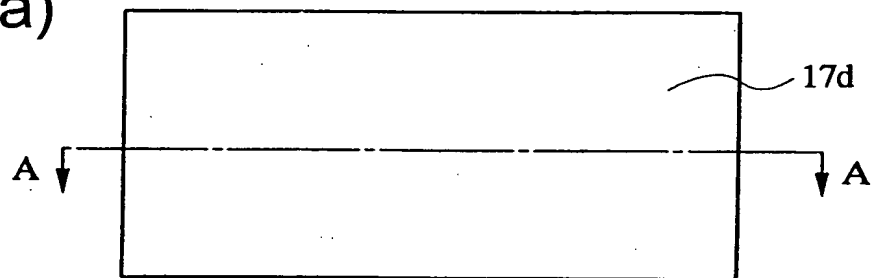
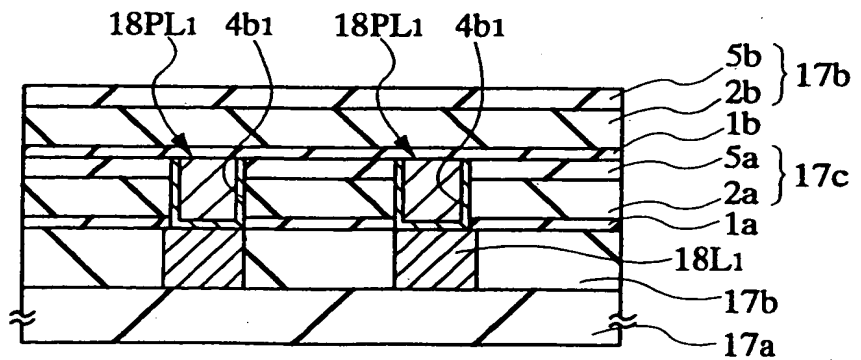


FIG. 21(b)



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FIG. 22(a)

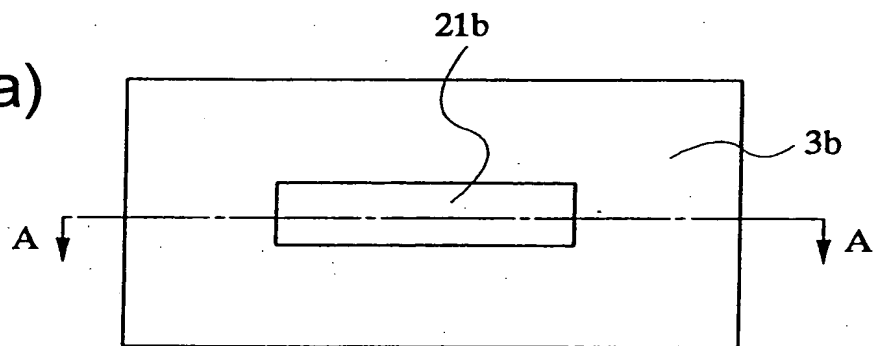


FIG. 22(b)

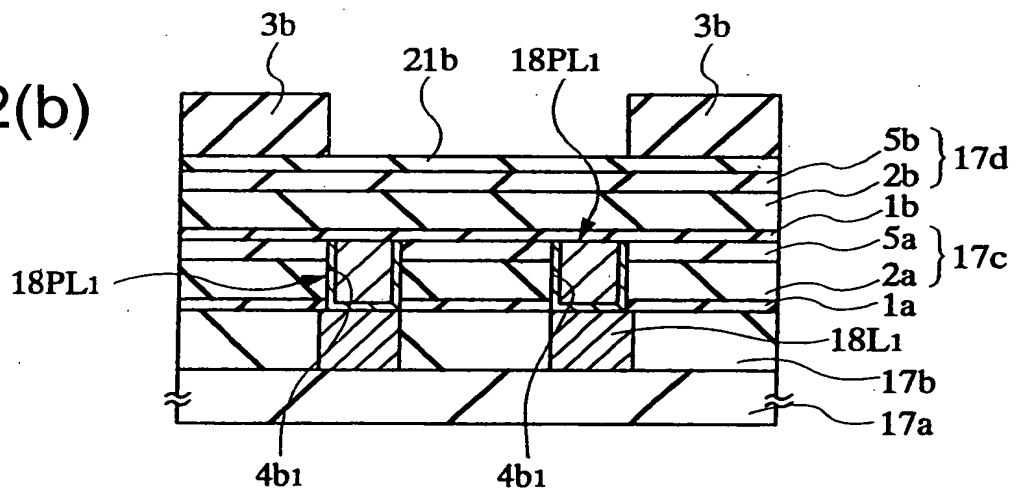


FIG. 23(a)

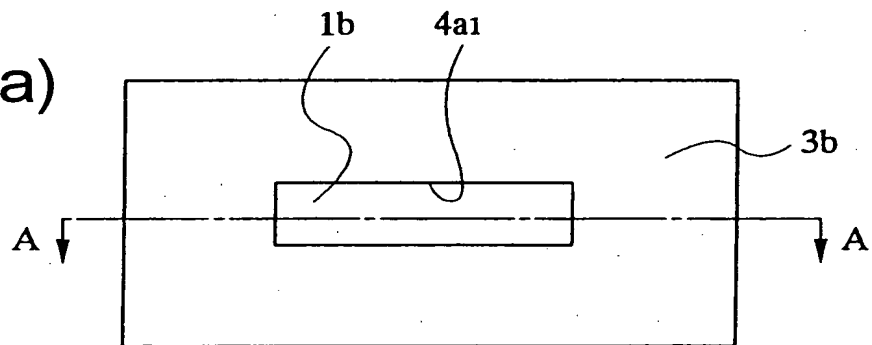
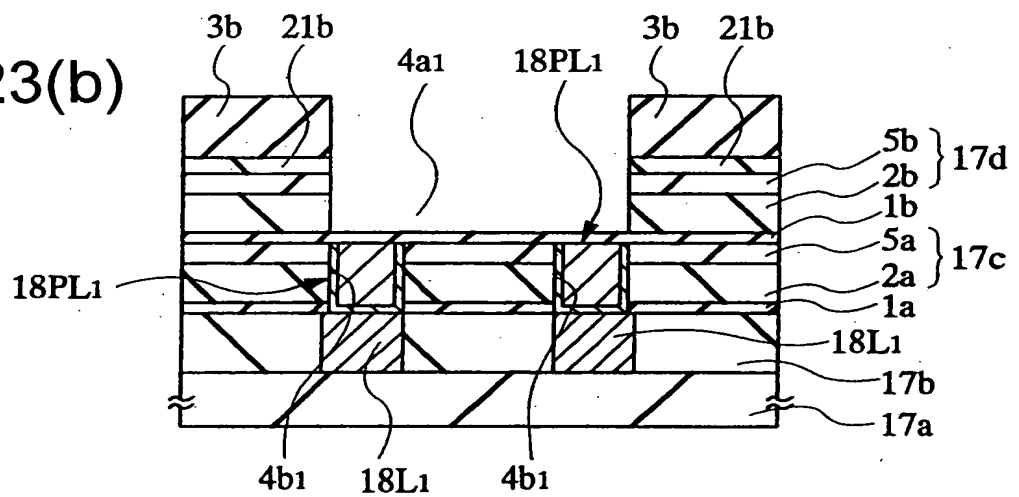


FIG. 23(b)



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FIG. 24(a)

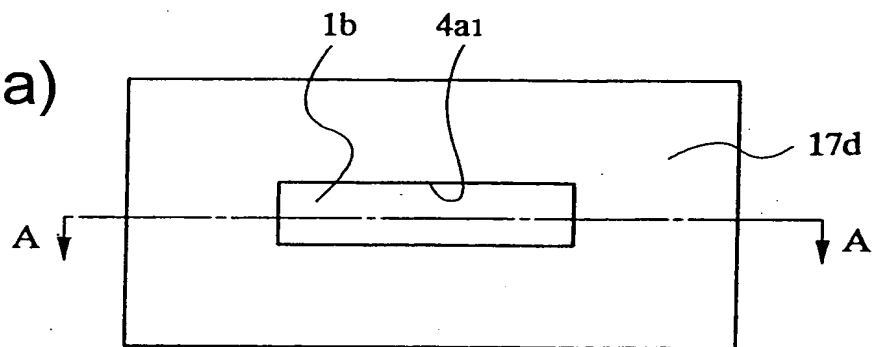


FIG. 24(b)

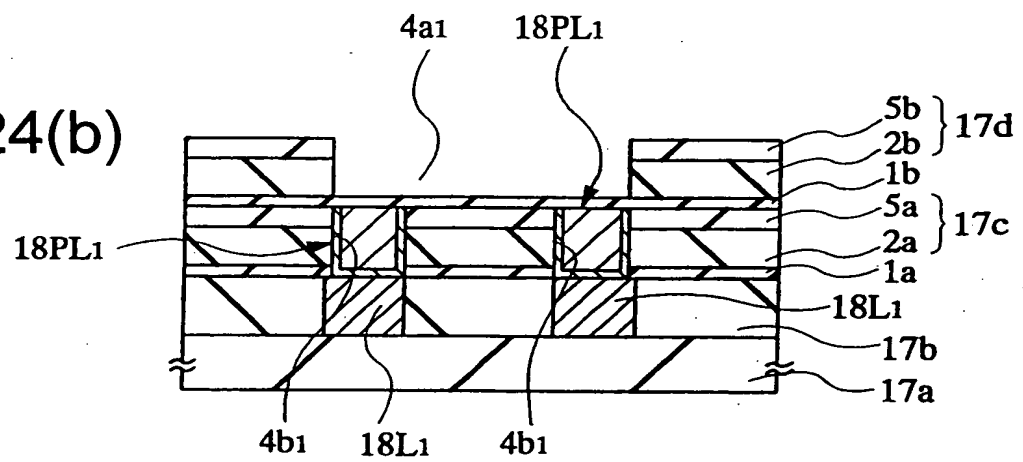


FIG. 25(a)

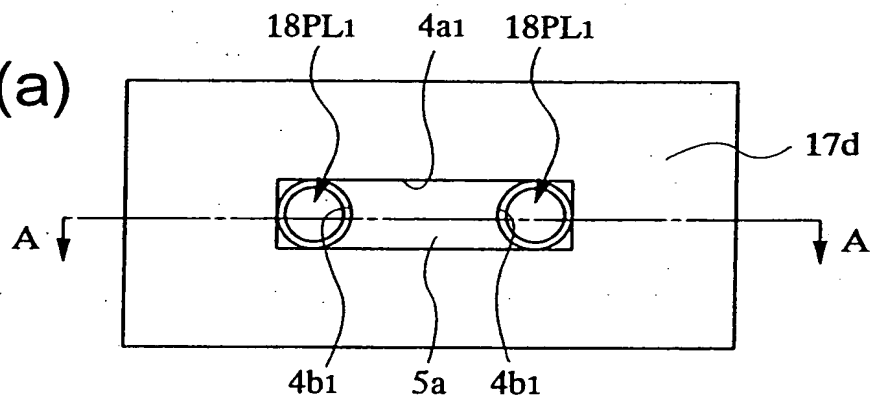


FIG. 25(b)

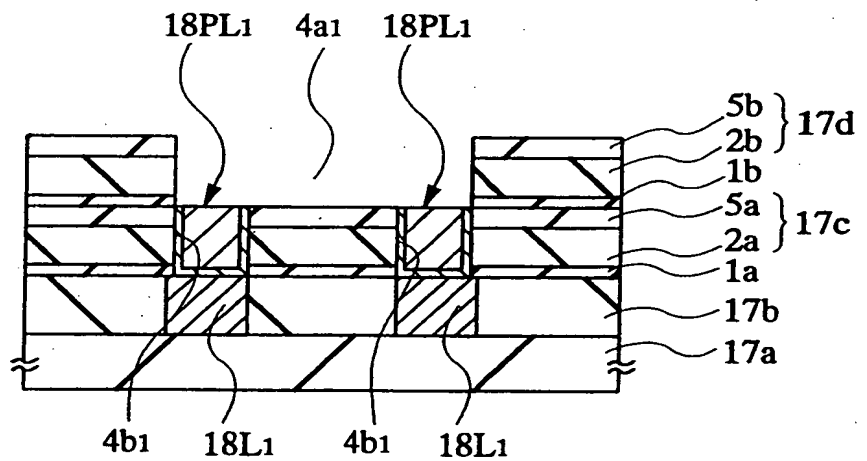


FIG. 26(a)

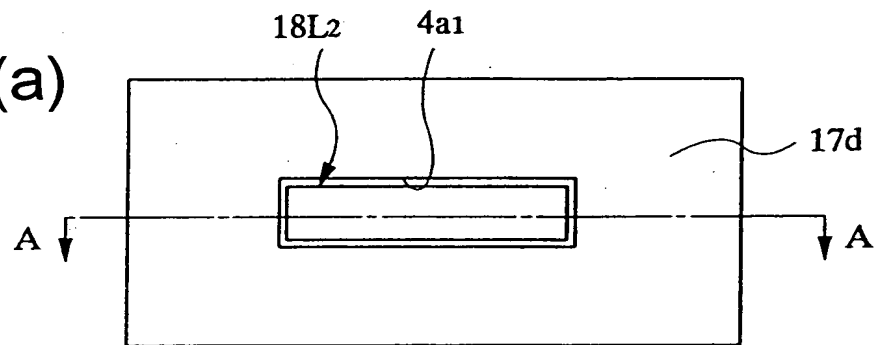


FIG. 26(b)

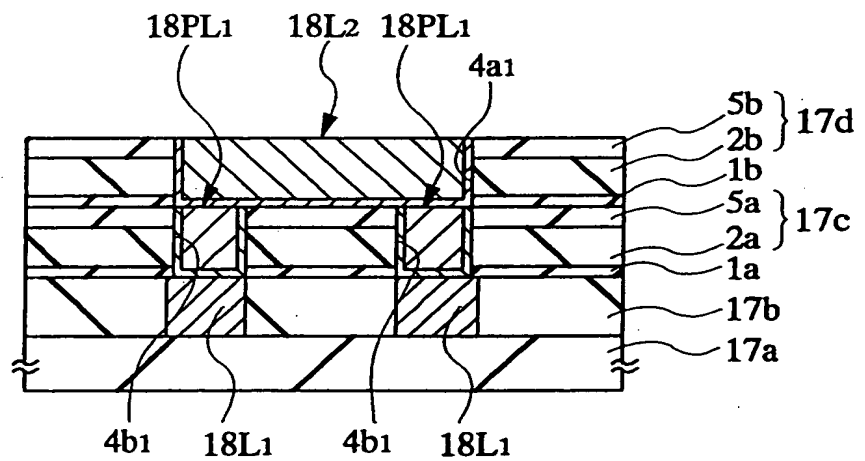


FIG. 27(a)

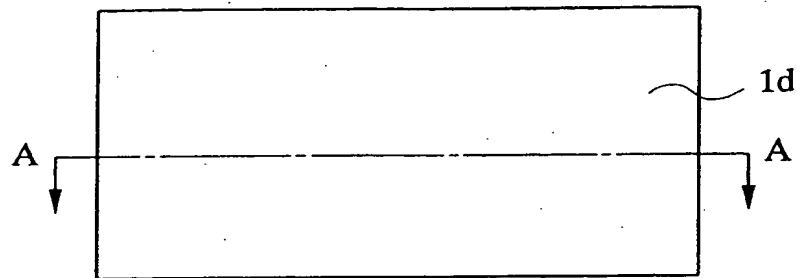


FIG. 27(b)

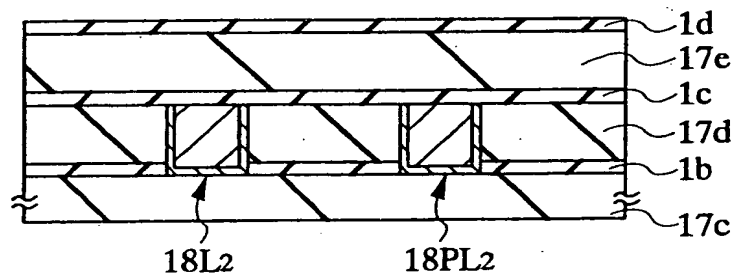


FIG. 28(a)

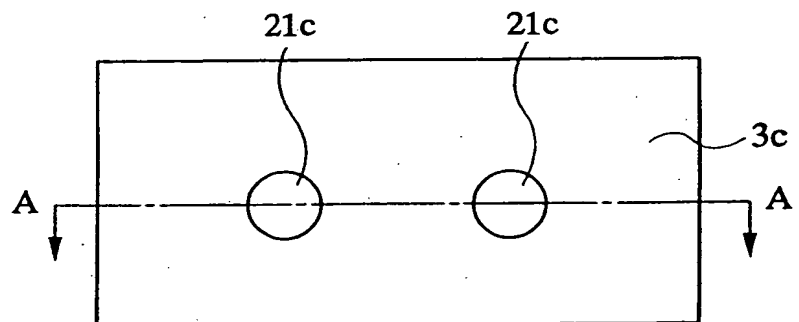


FIG. 28(b)

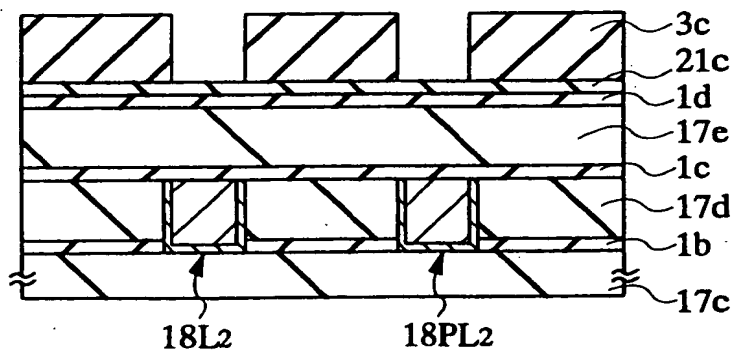




FIG. 29(a)

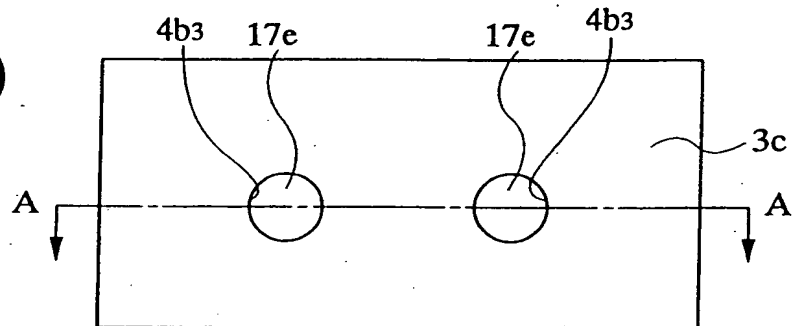


FIG. 29(b)

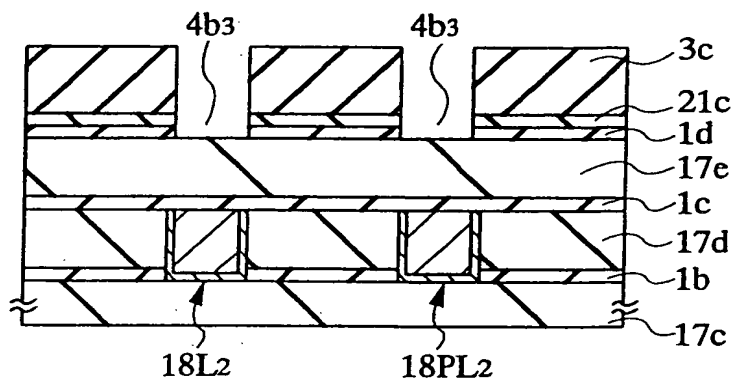


FIG. 30(a)

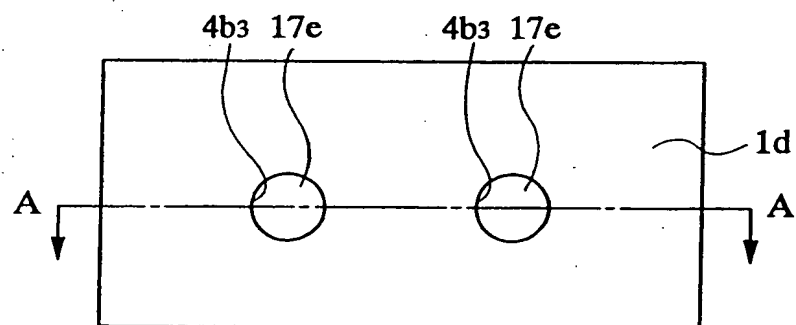


FIG. 30(b)

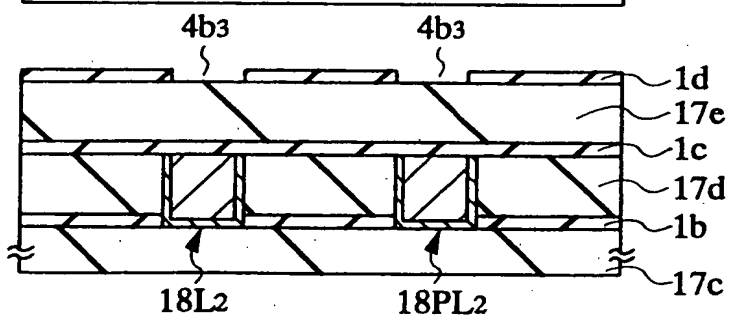


FIG. 31(a)

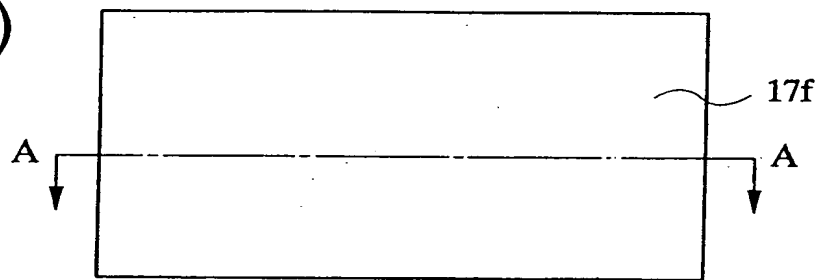
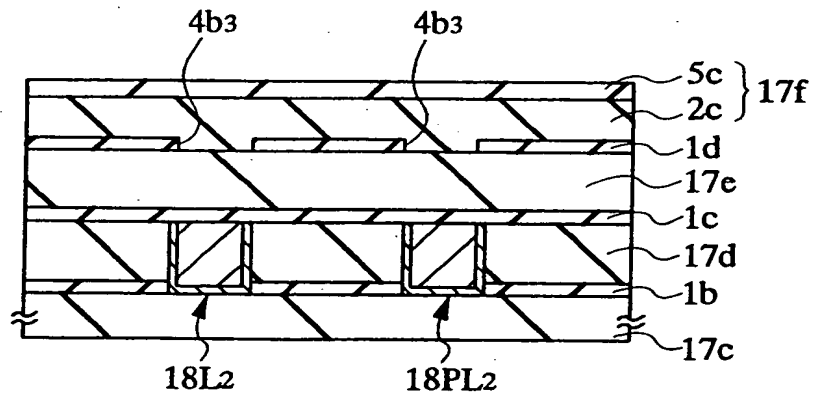


FIG. 31(b)



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FIG. 32(a)

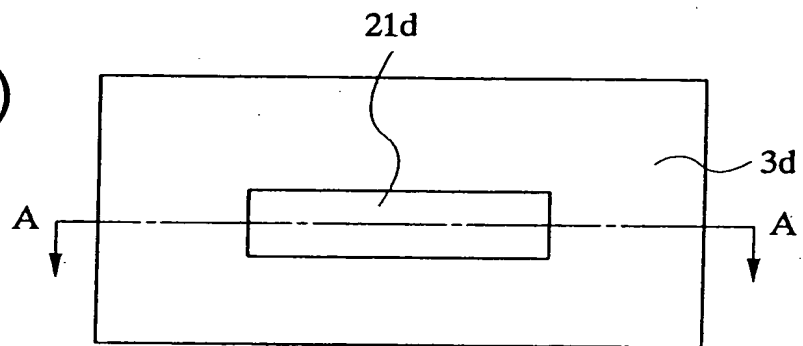


FIG. 32(b)

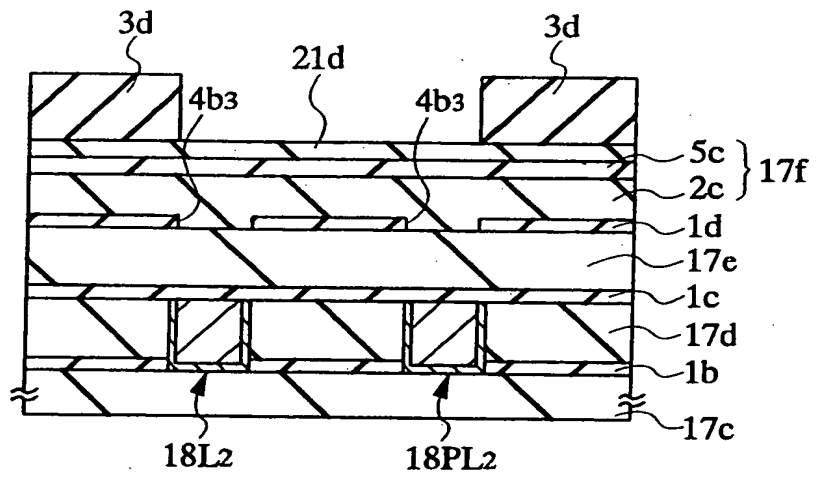


FIG. 33(a)

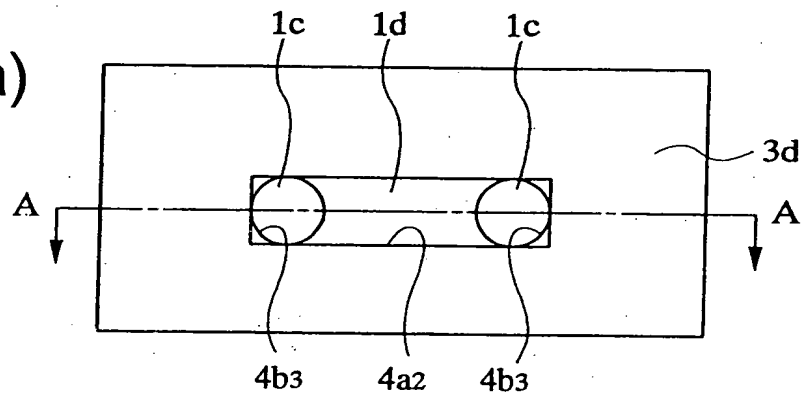


FIG. 33(b)

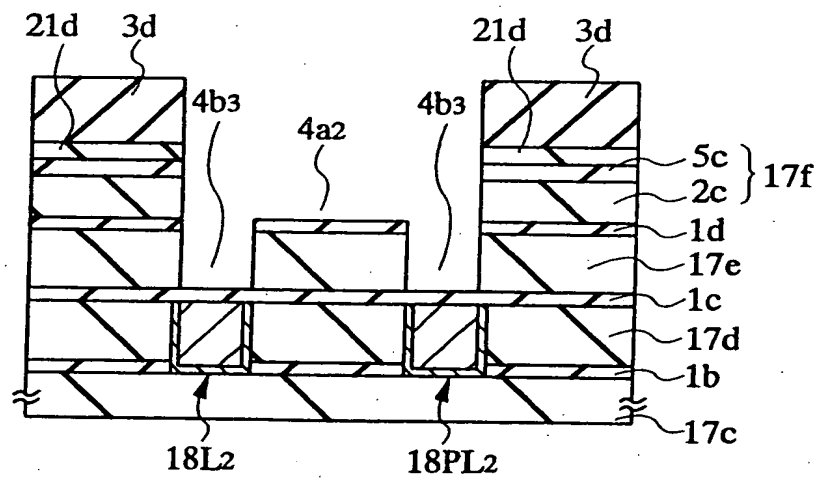


FIG. 34(a)

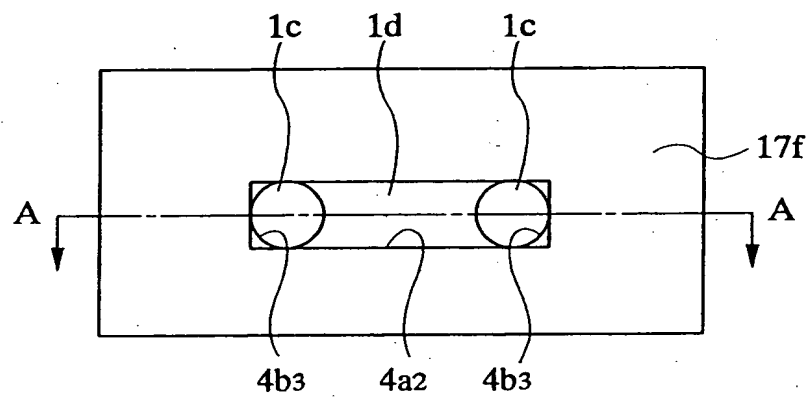


FIG. 34(b)

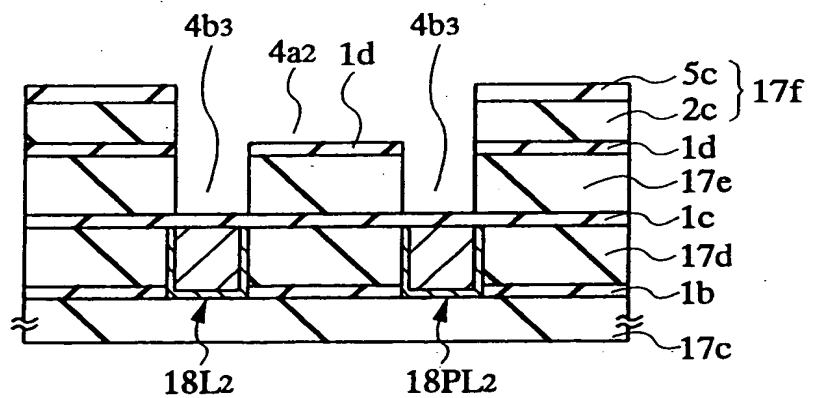


FIG. 35(a)

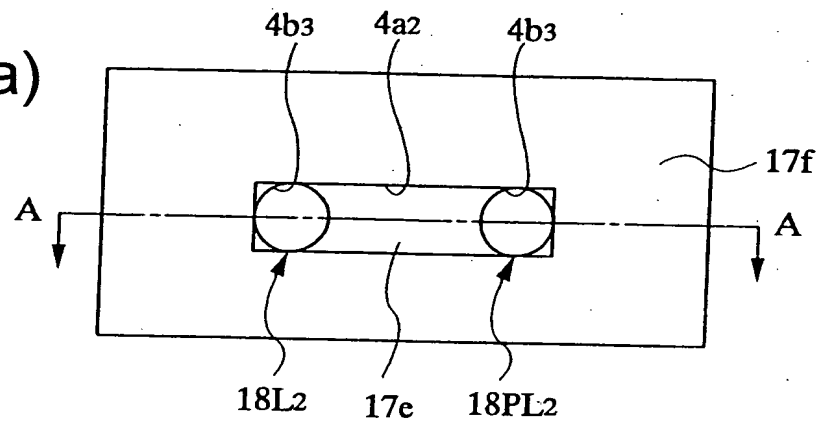


FIG. 35(b)

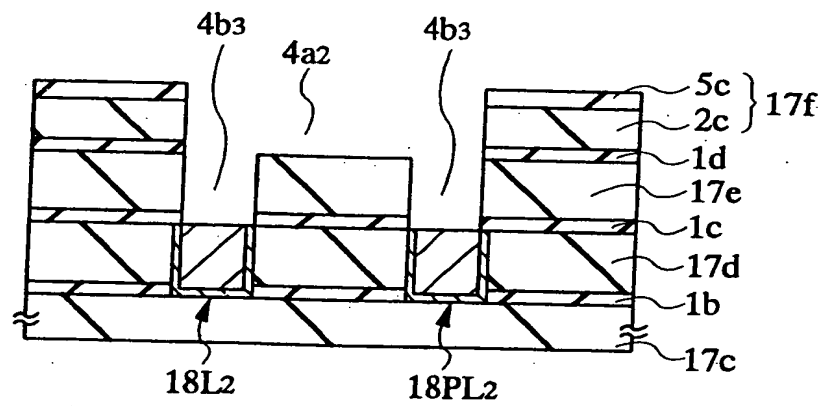


FIG. 36(a)

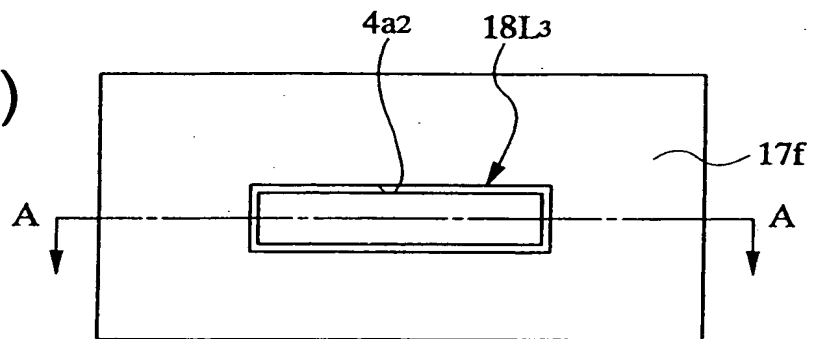


FIG. 36(b)

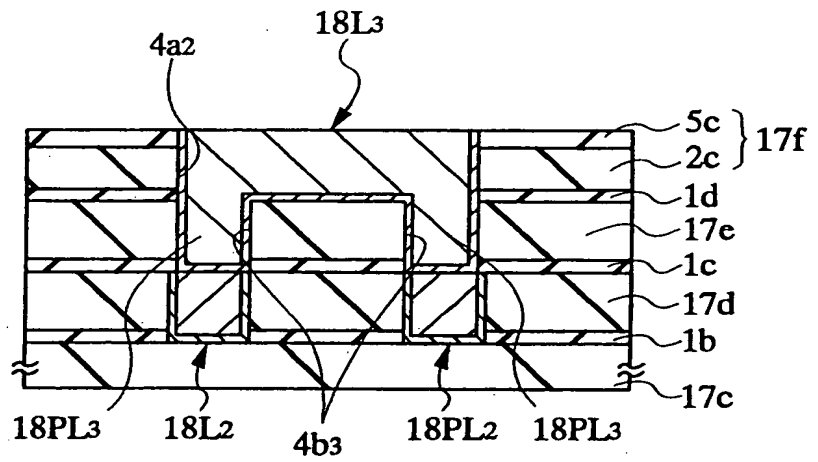


FIG. 37(a)

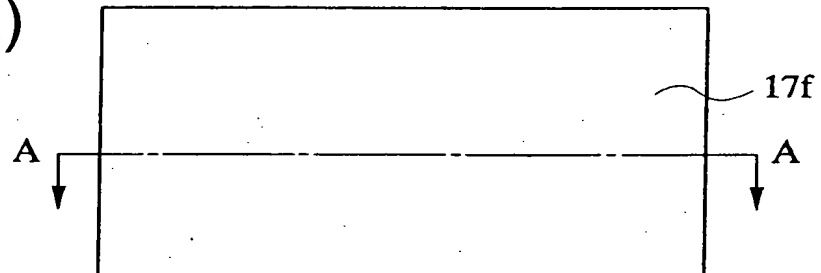


FIG. 37(b)

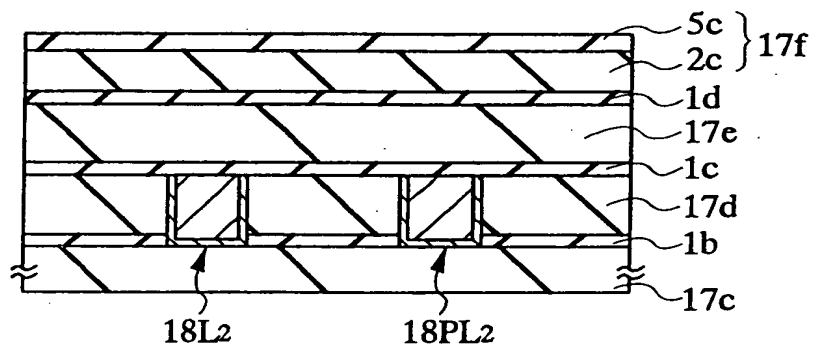


FIG. 38(a)

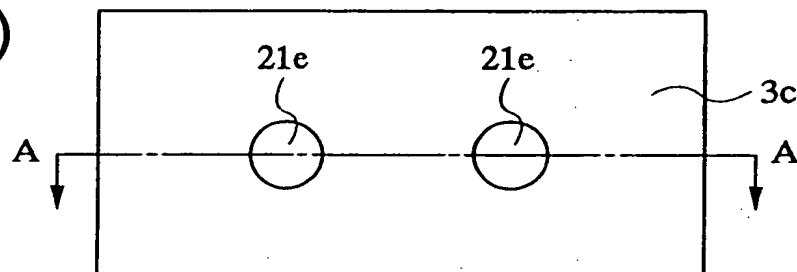


FIG. 38(b)

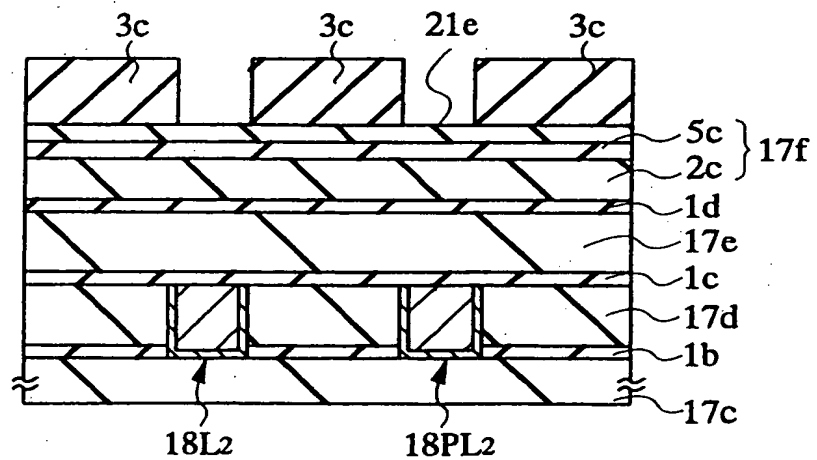




FIG. 39(a)

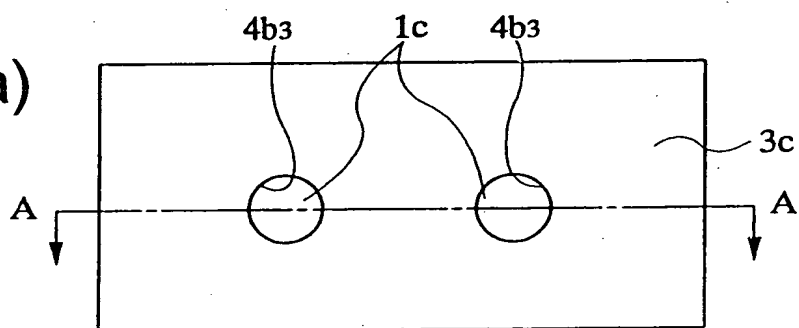


FIG. 39(b)

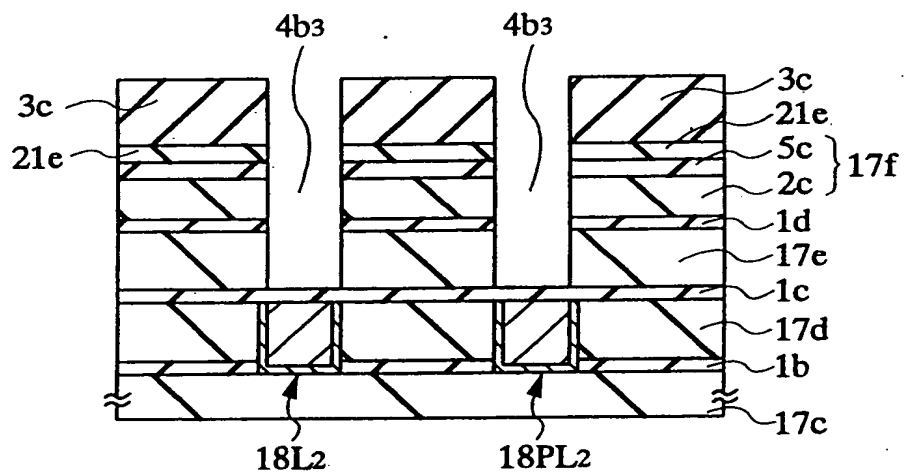


FIG. 40(a)

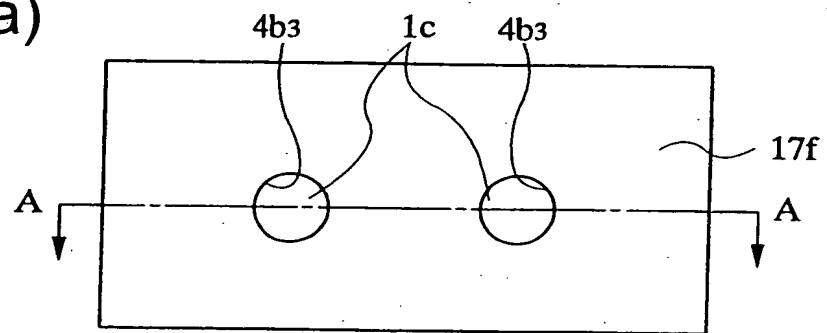


FIG. 40(b)

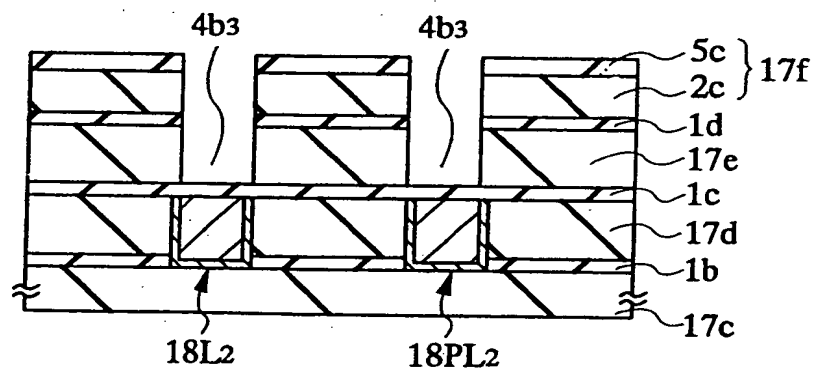


FIG. 41(a)

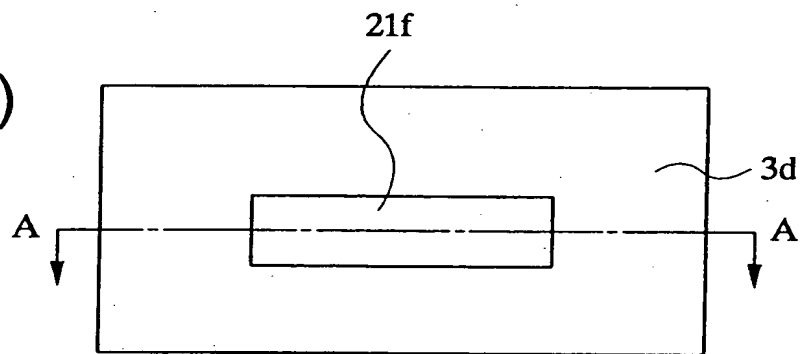


FIG. 41(b)

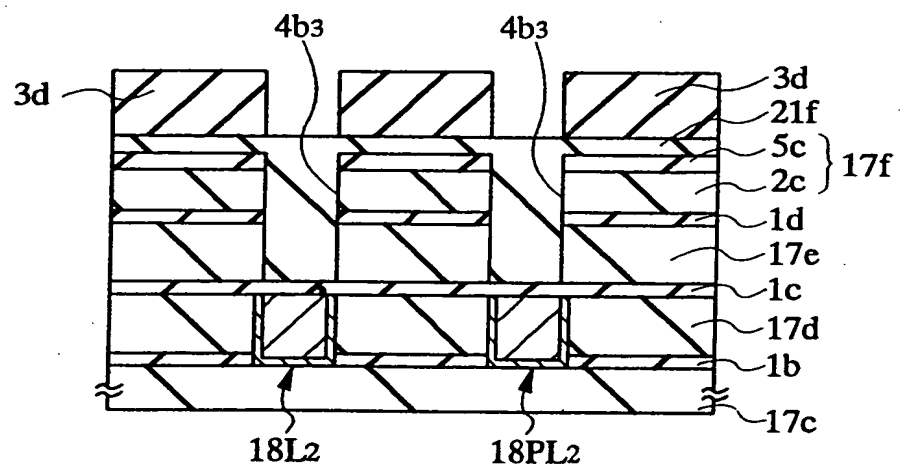


FIG. 42(a)

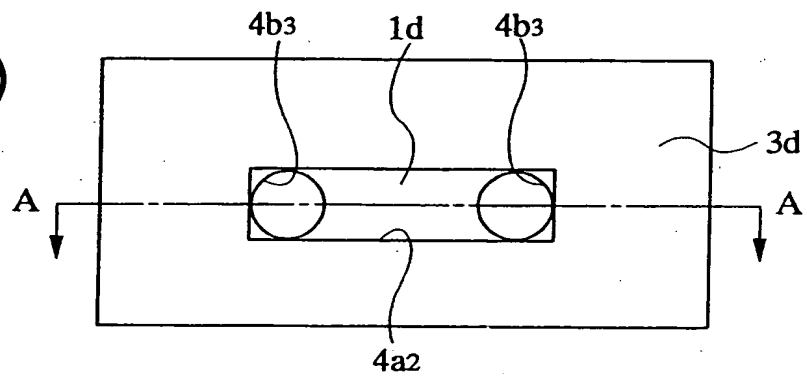


FIG. 42(b)

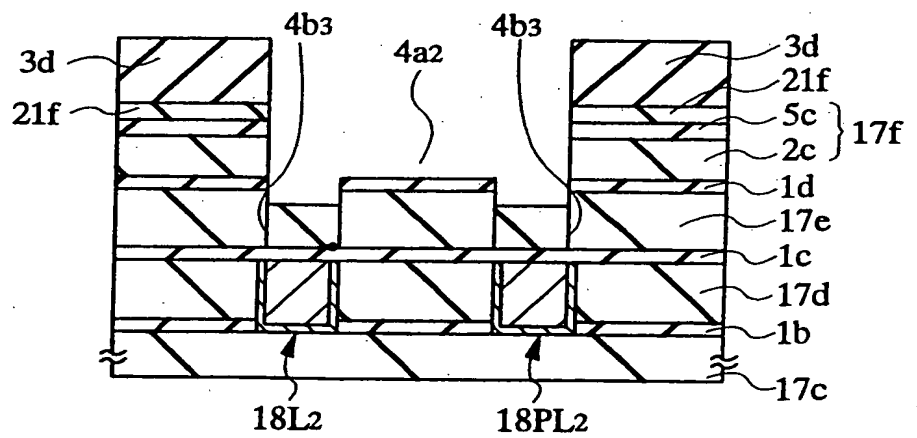


FIG. 43(a)

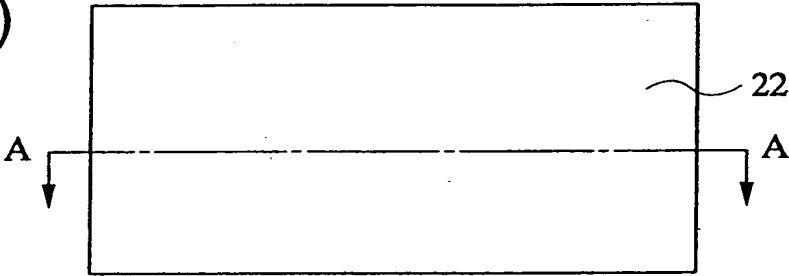


FIG. 43(b)

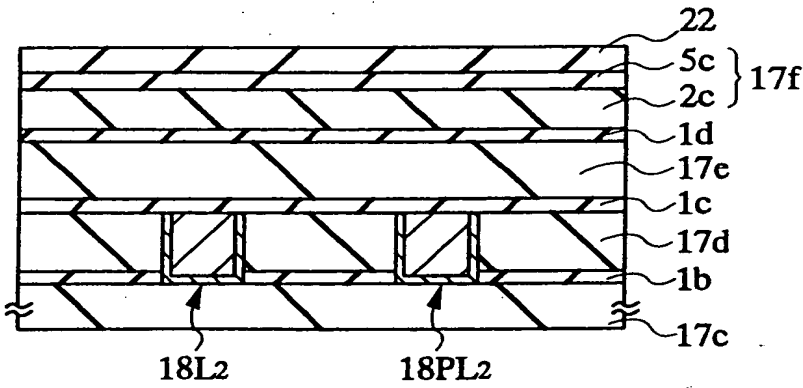


FIG. 44(a)

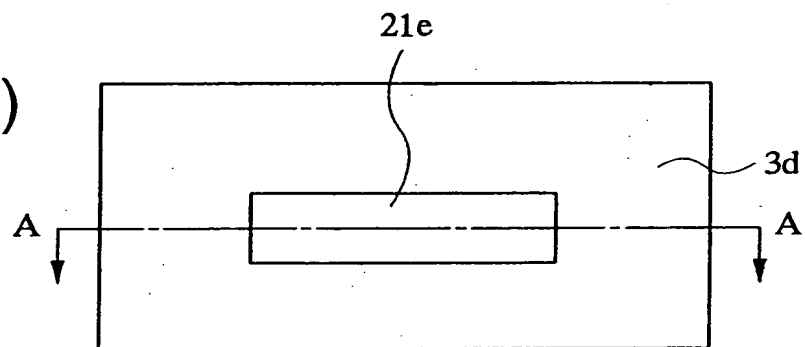
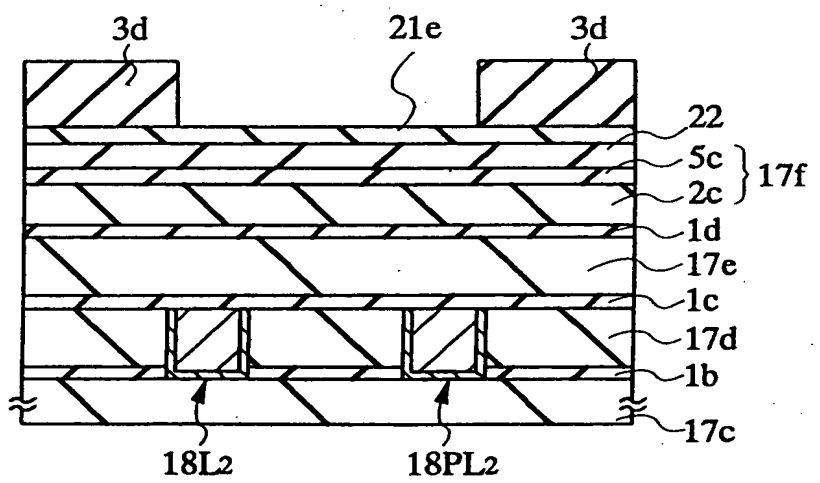


FIG. 44(b)



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FIG. 45(a)

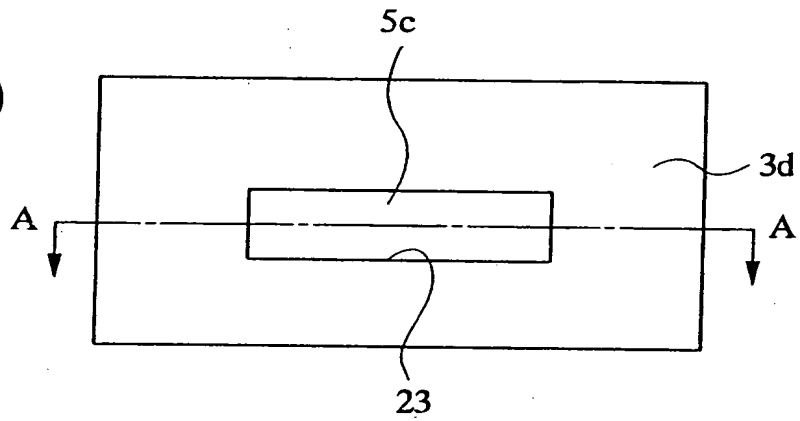


FIG. 45(b)

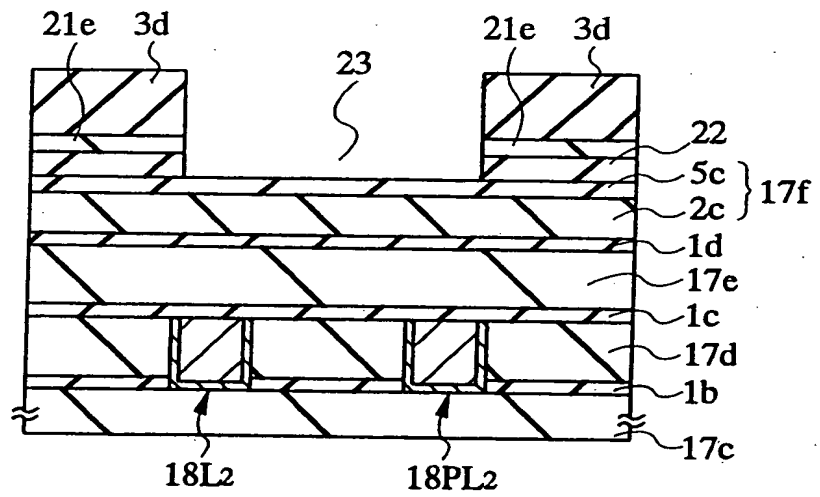


FIG. 46(a)

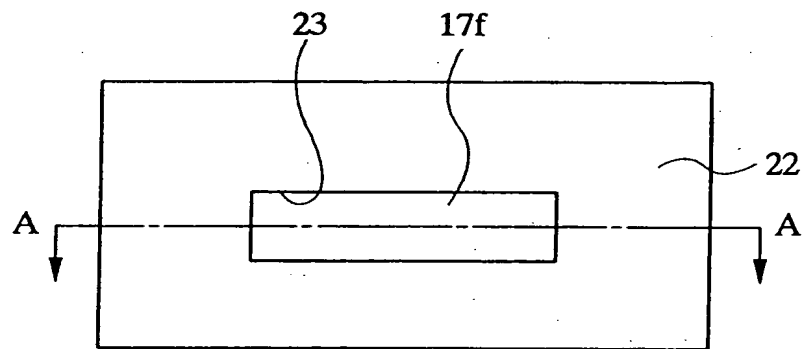


FIG. 46(b)

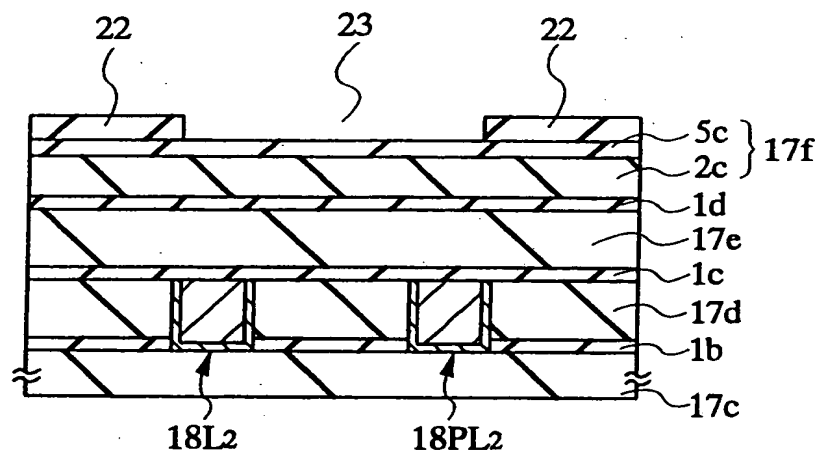




FIG. 47(a)

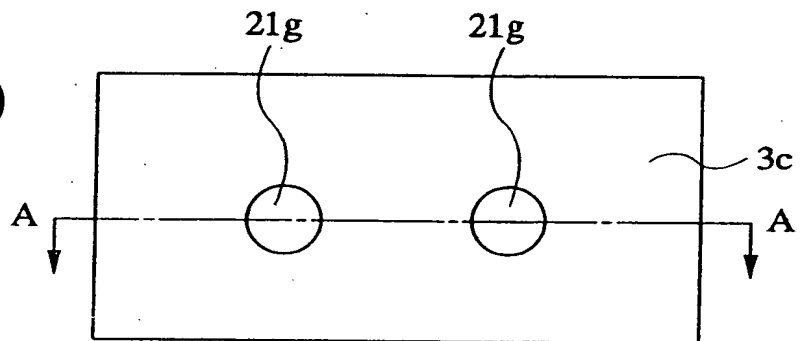
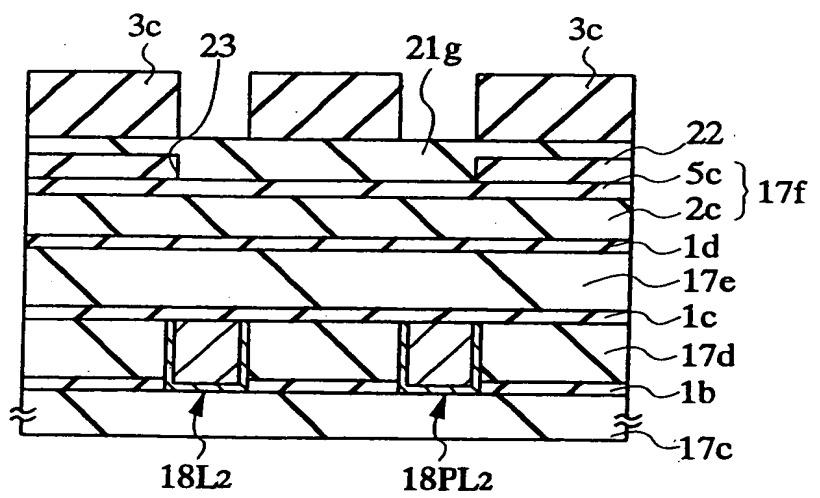


FIG. 47(b)



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FIG. 48(a)

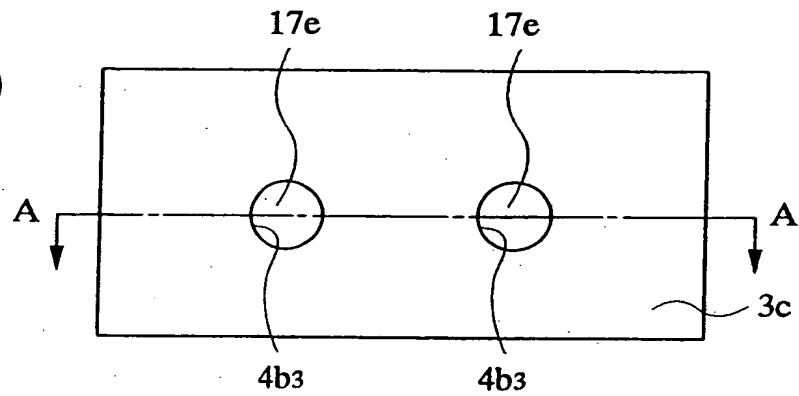
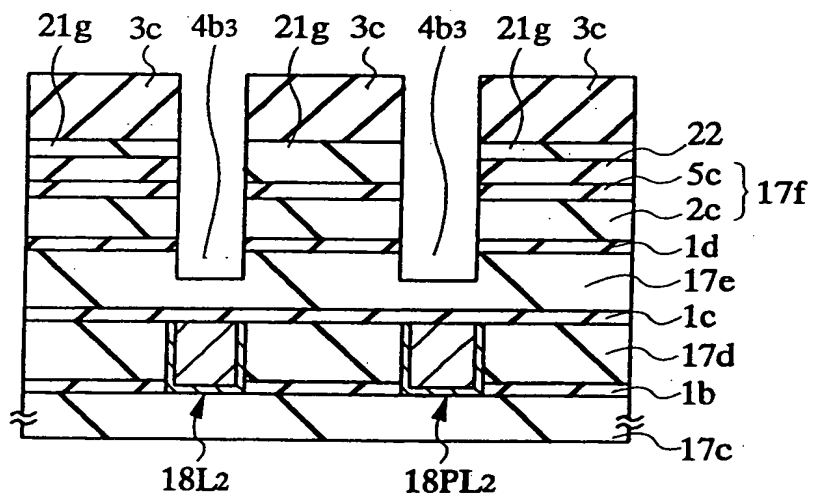


FIG. 48(b)



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FIG. 49(a)

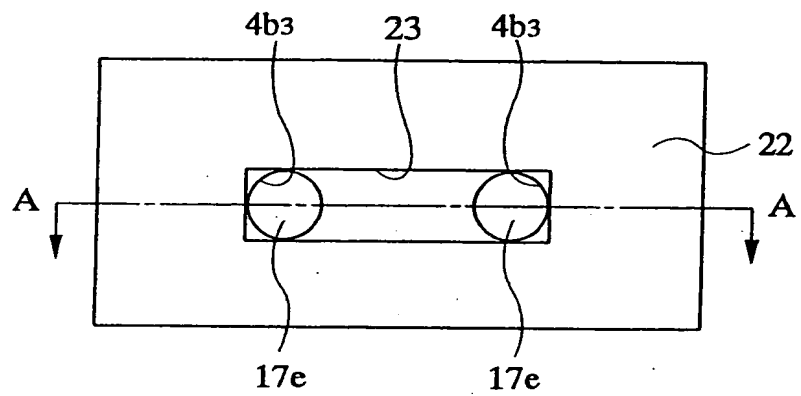


FIG. 49(b)

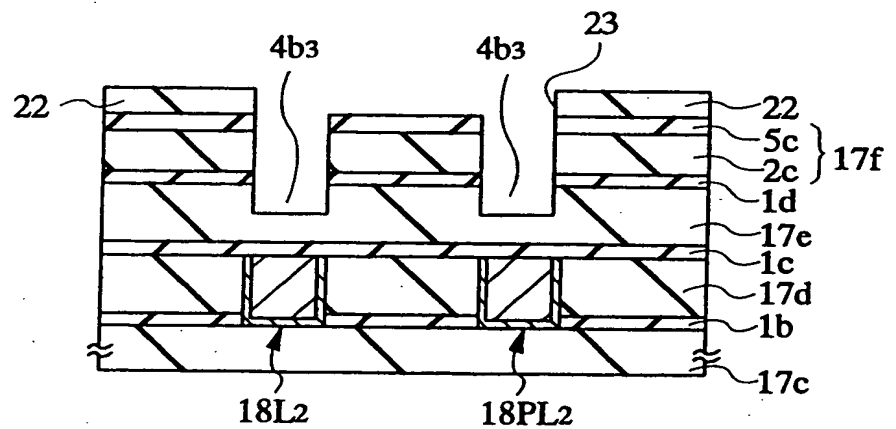


FIG. 50(a)

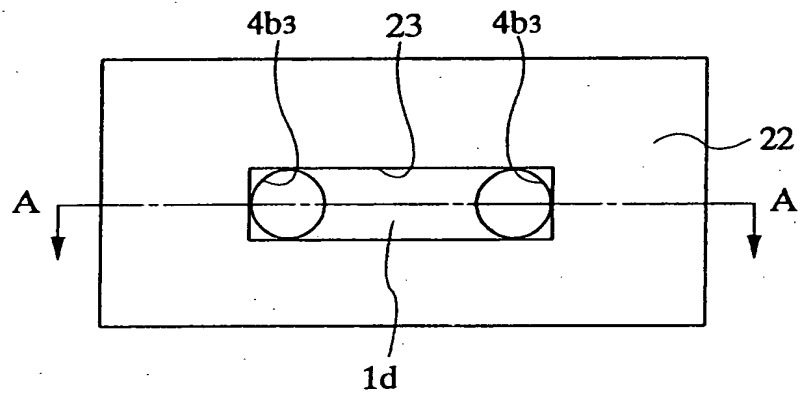
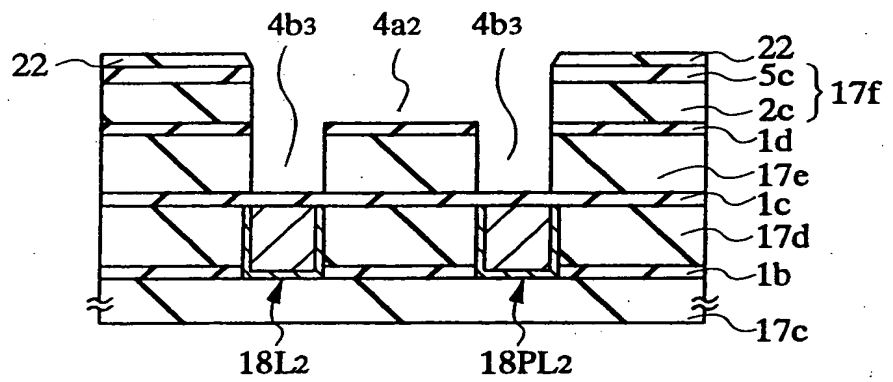


FIG. 50(b)



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FIG. 51(a)

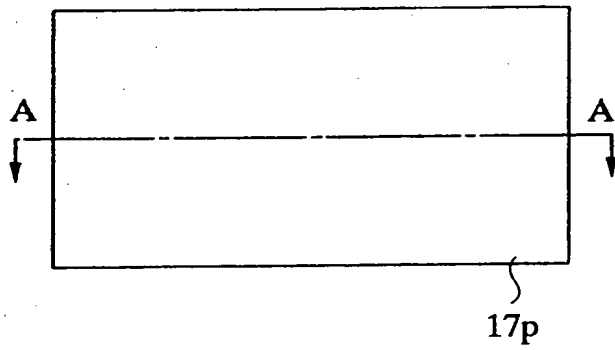


FIG. 51(b)

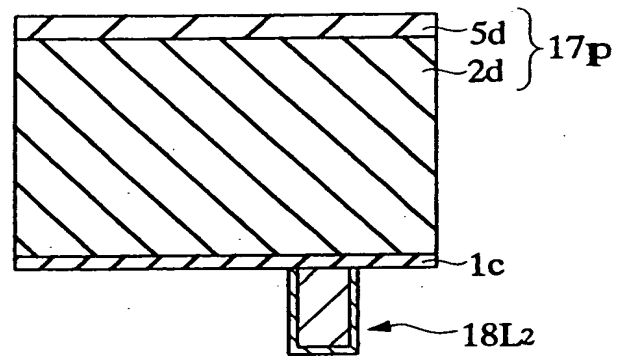


FIG. 52(a)

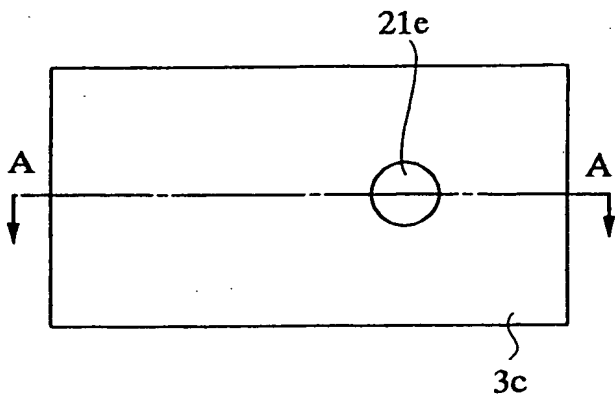
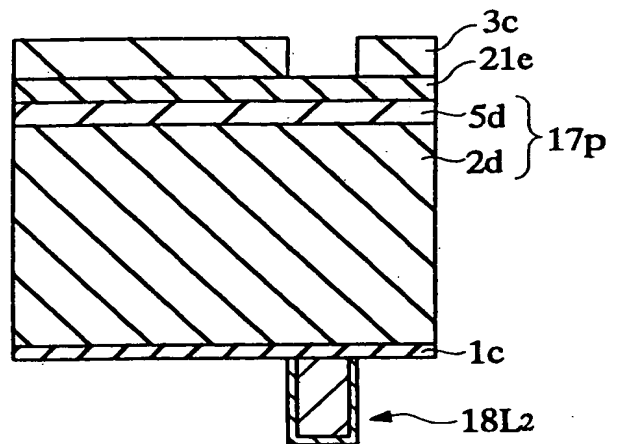


FIG. 52(b)



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FIG. 53(a)

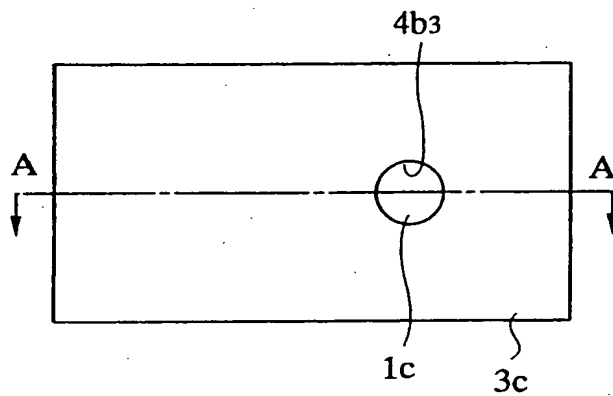


FIG. 53(b)

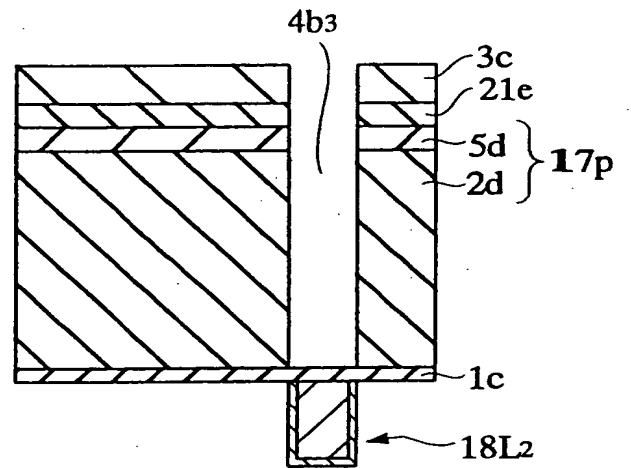


FIG. 54(a)

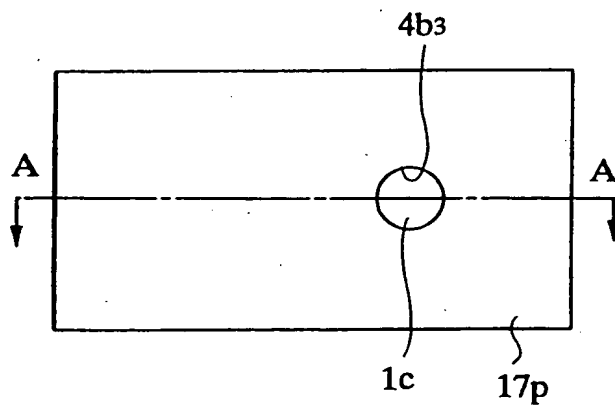
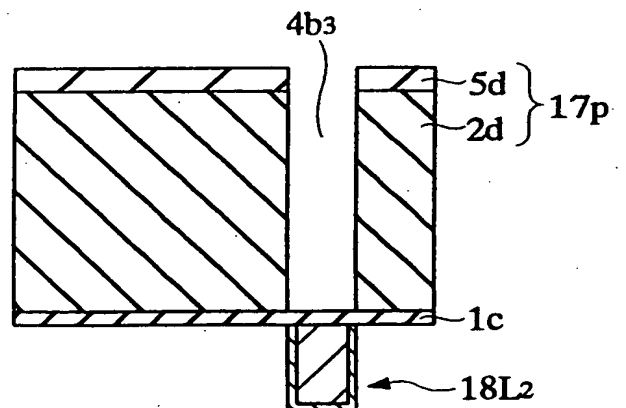


FIG. 54(b)



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FIG. 55(a)

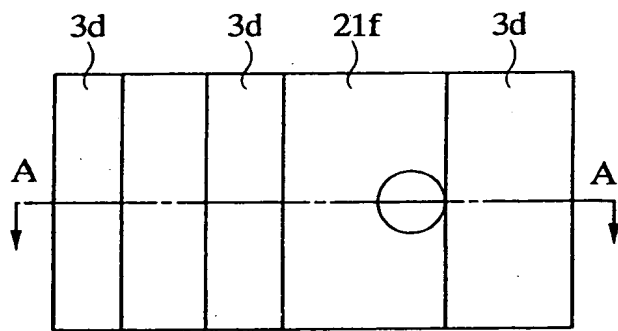
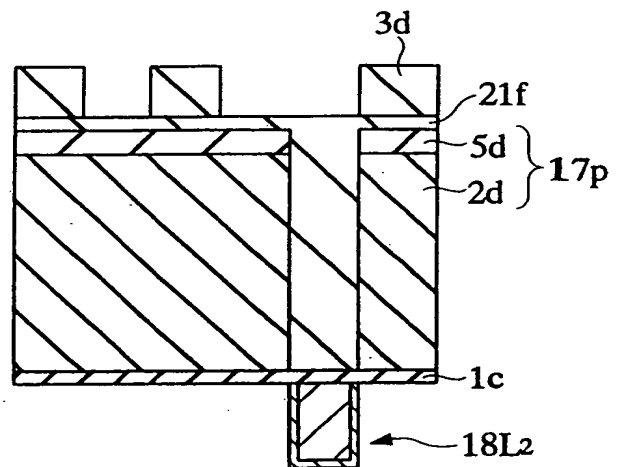


FIG. 55(b)



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FIG. 56(a)

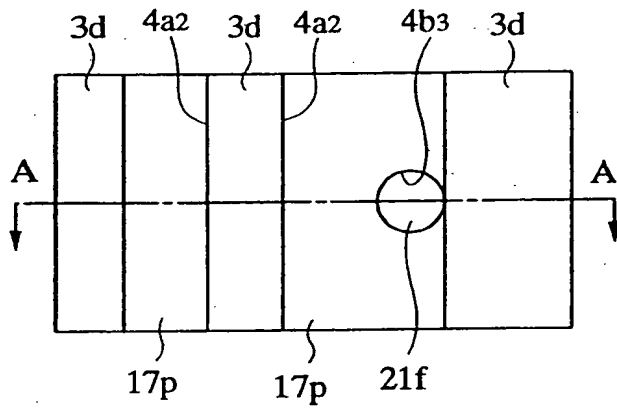


FIG. 56(b)

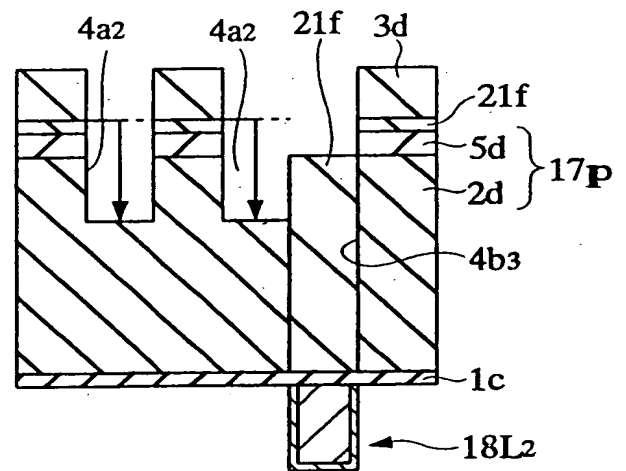


FIG. 57(a)

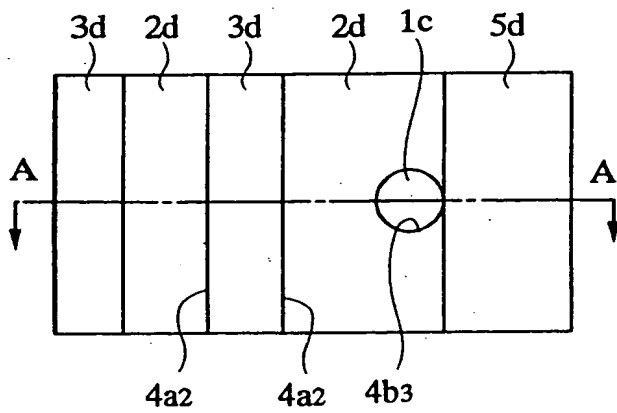


FIG. 57(b)

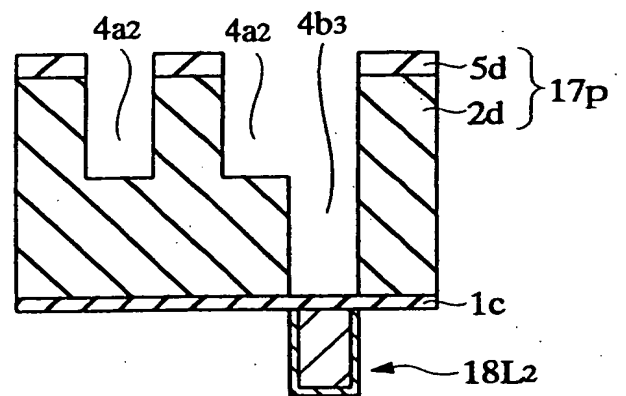




FIG. 58(a)

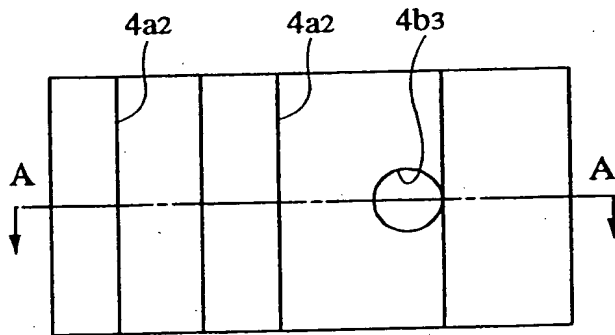


FIG. 58(b)

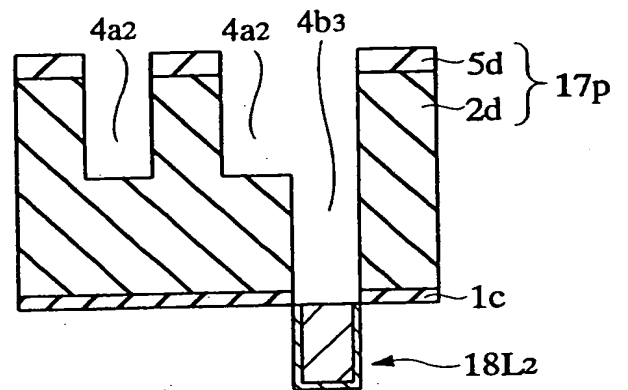


FIG. 59(a)

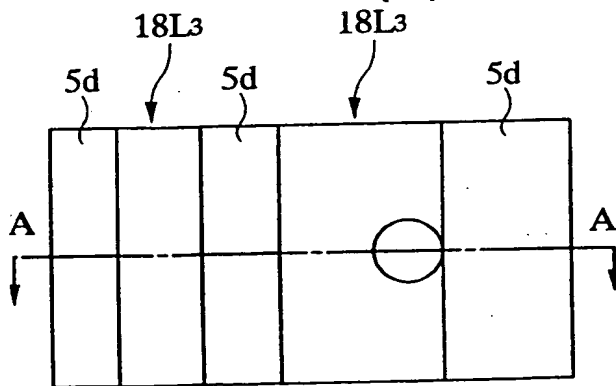


FIG. 59(b)

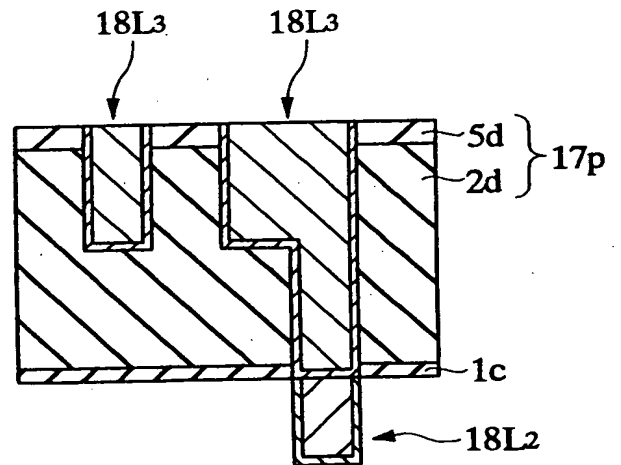


FIG. 60

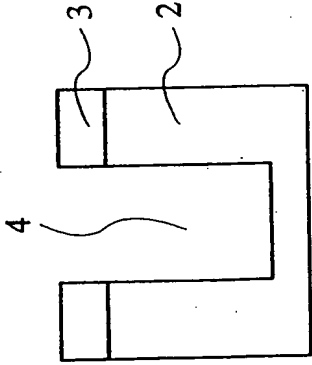
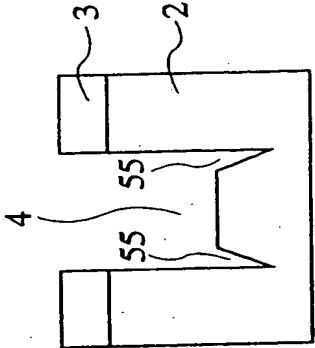
	C4F8 FLOW RATE > O2 FLOW RATE	C4F8 FLOW RATE ≤ O2 FLOW RATE
SCHEMATIC CROSS-SECTIONAL VIEW		
FORM	○	× (HAVING A SIDE TRENCH)
SELECTIVITY TO SiN	× (NOT GREATER THAN 2)	○ (NOT GREATER THAN 5)
ETCHING APPARATUS	TOKYO ELECTRON IEM	
ETCHING GAS	C4F8 / O2 / Ar	
PRESSURE	2.5 mTorr	3.0 mTorr
HIGH-FREQUENCY POWER	500 / 200 W	2200 / 1400 W
STAGE TEMPERATURE	-20 °C	

FIG. 61(a)

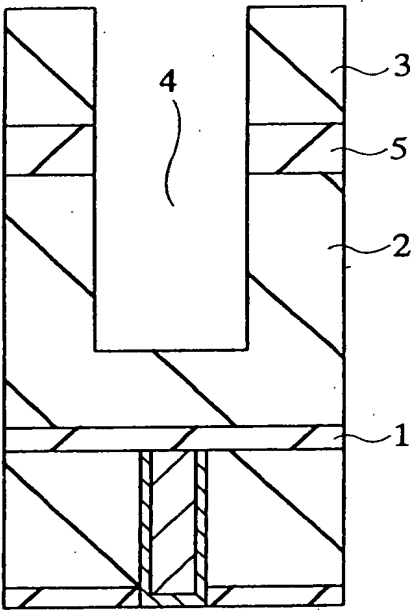


FIG. 61(b)

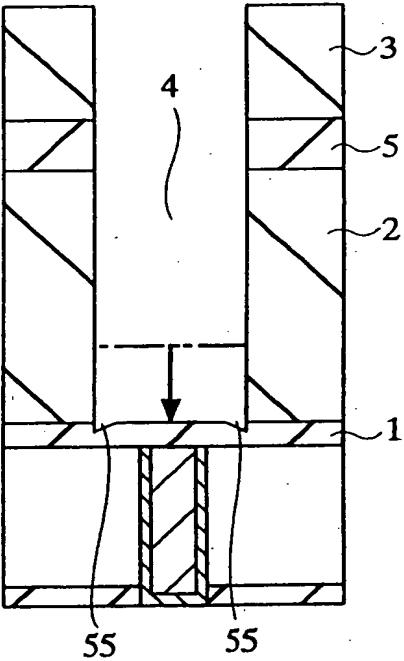


FIG. 62(a)

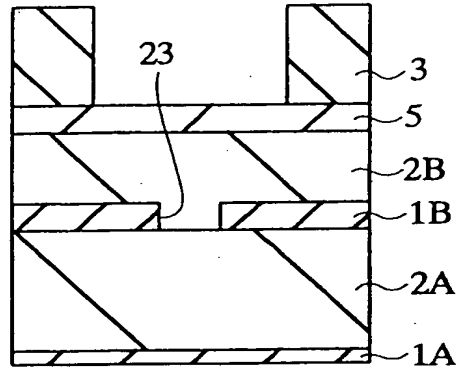


FIG. 62(b)

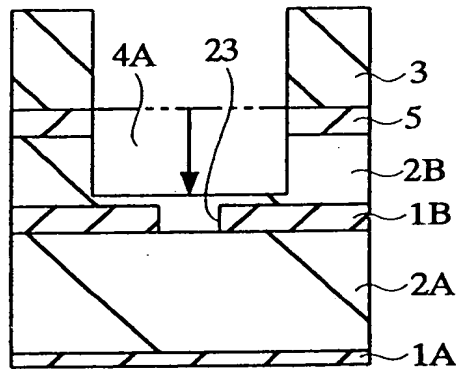
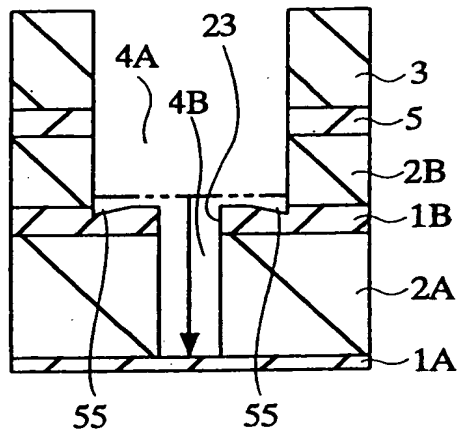


FIG. 62(c)



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FIG. 63(a)

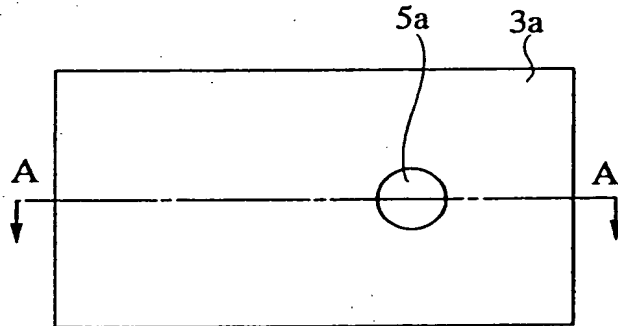


FIG. 63(b)

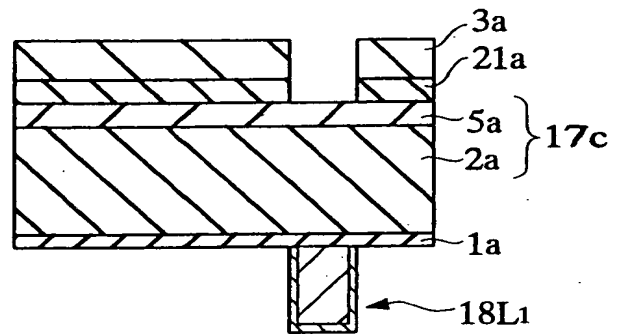


FIG. 64(a)

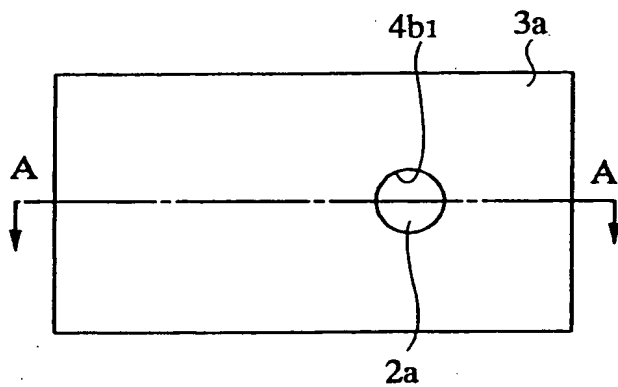


FIG. 64(b)

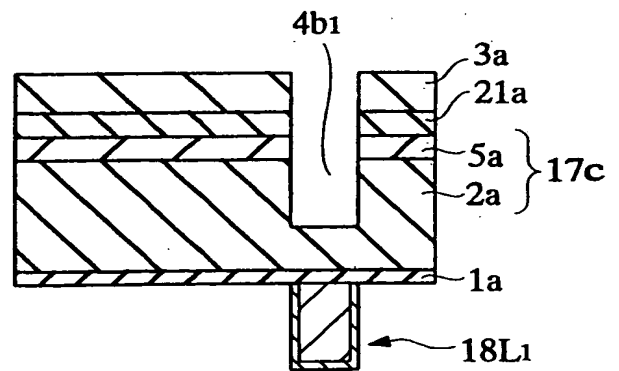


FIG. 65(a)

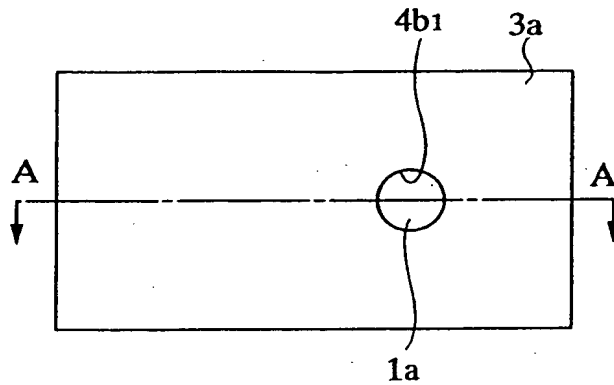


FIG. 65(b)

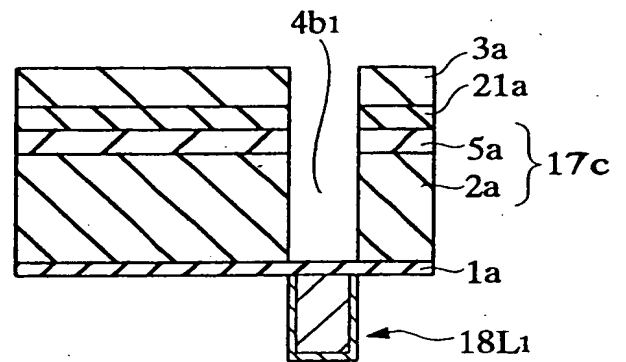


FIG. 66(a)

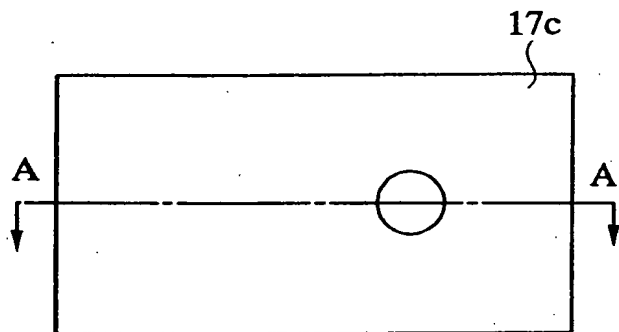


FIG. 66(b)

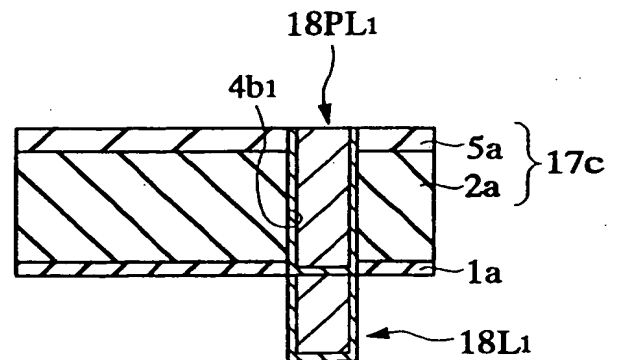


FIG. 67(a)

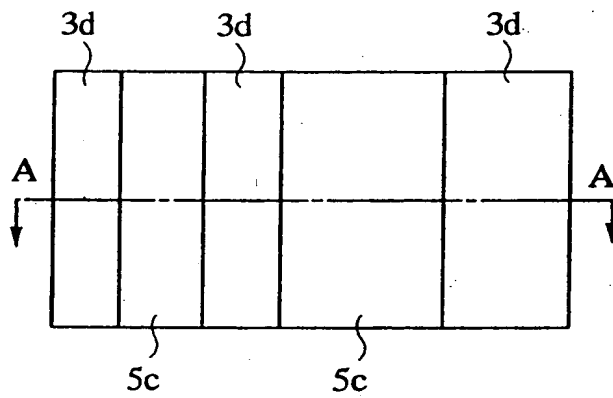


FIG. 67(b)

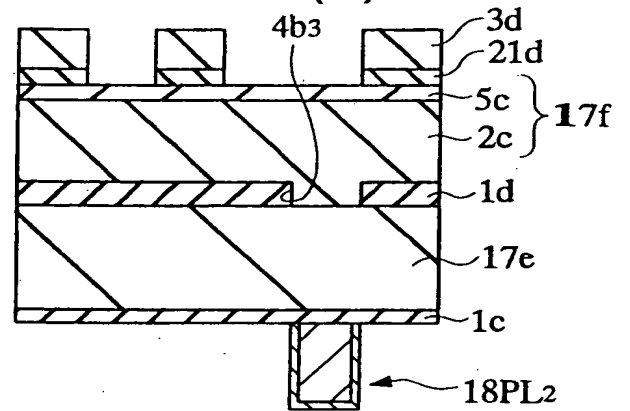


FIG. 68(a)

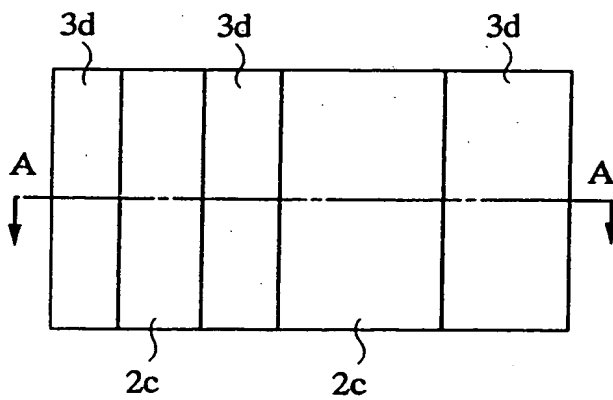
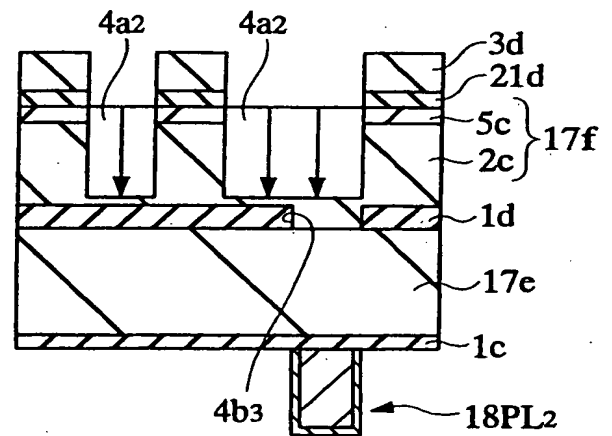


FIG. 68(b)



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FIG. 69(a)

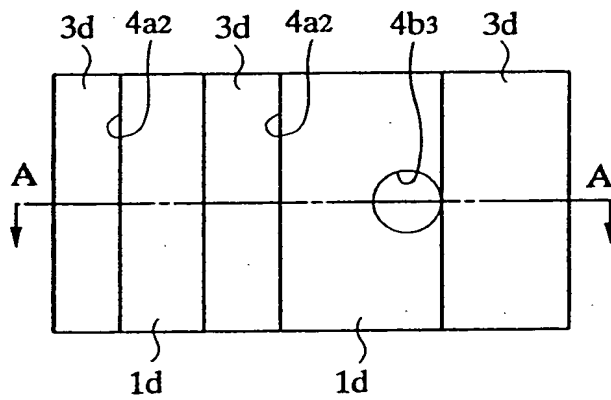


FIG. 69(b)

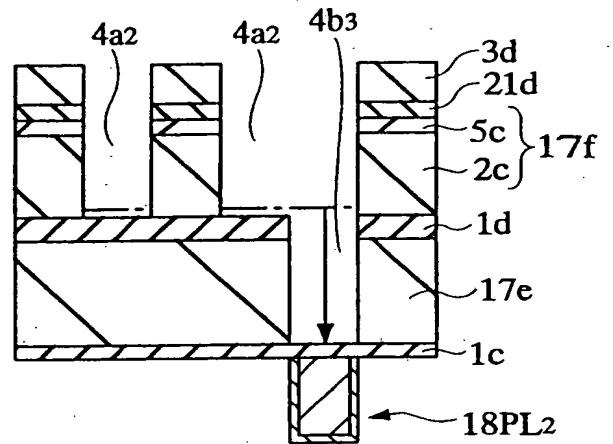


FIG. 70(a)

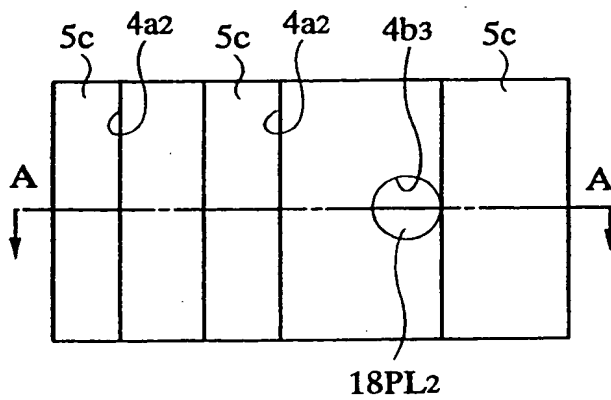
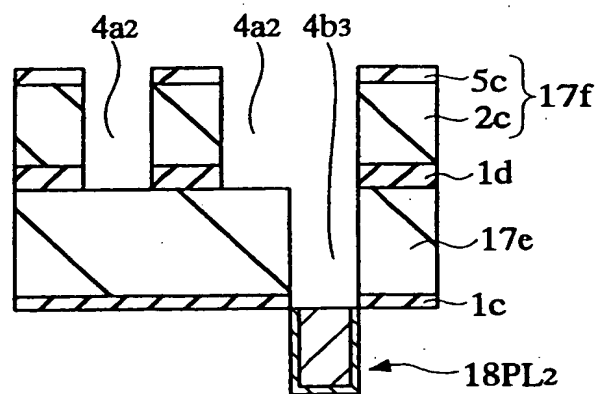


FIG. 70(b)





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FIG. 71(a)

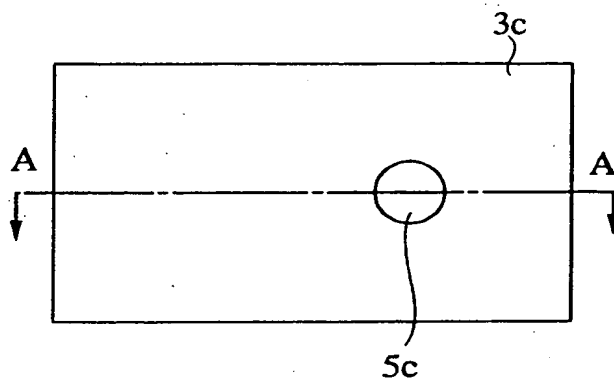


FIG. 71(b)

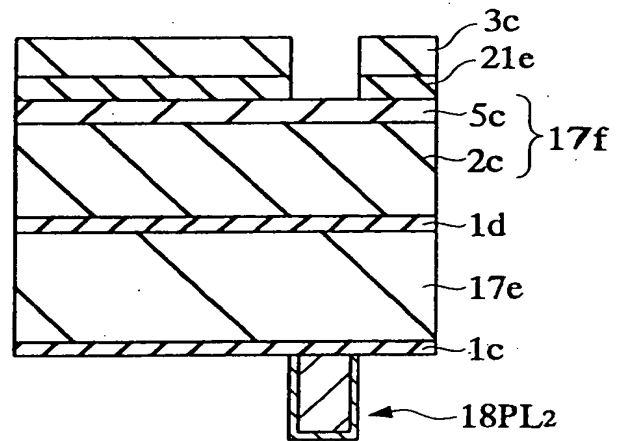


FIG. 72(a)

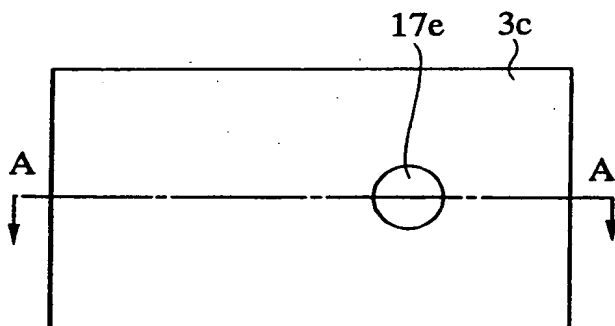


FIG. 72(b)

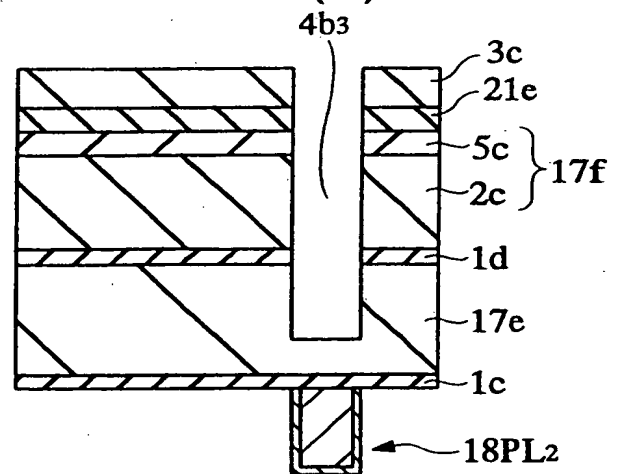


FIG. 73(a)

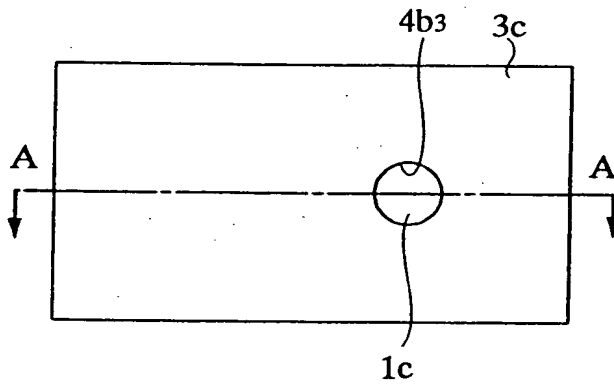


FIG. 73(b)

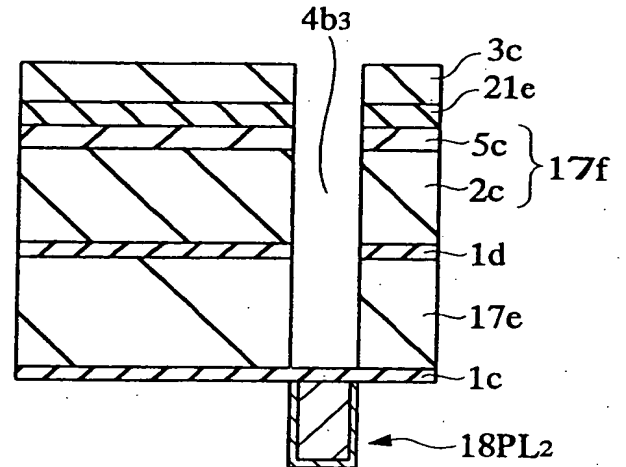


FIG. 74(a)

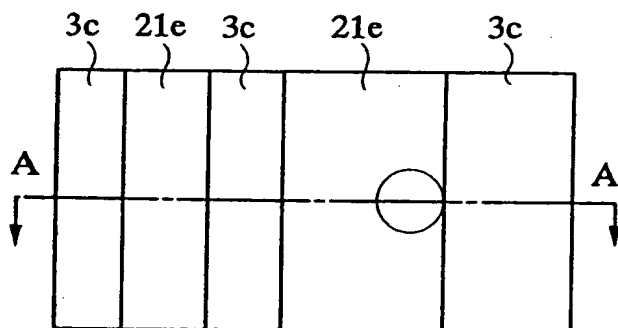
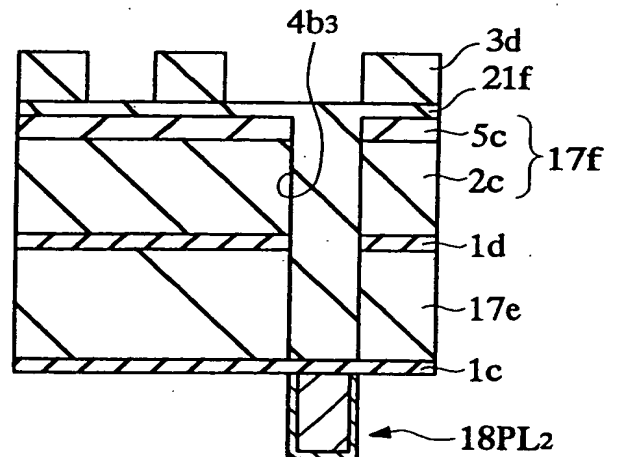


FIG. 74(b)



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FIG. 75(a)

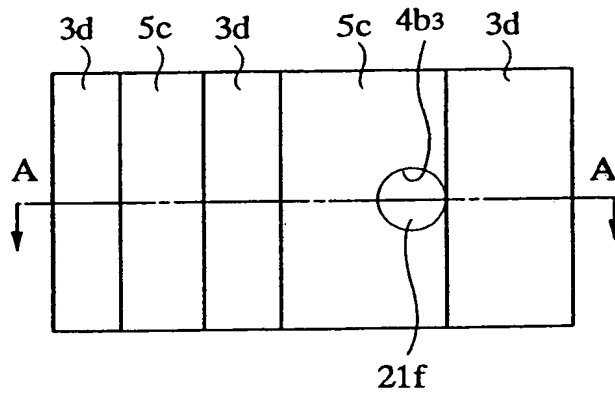


FIG. 75(b)

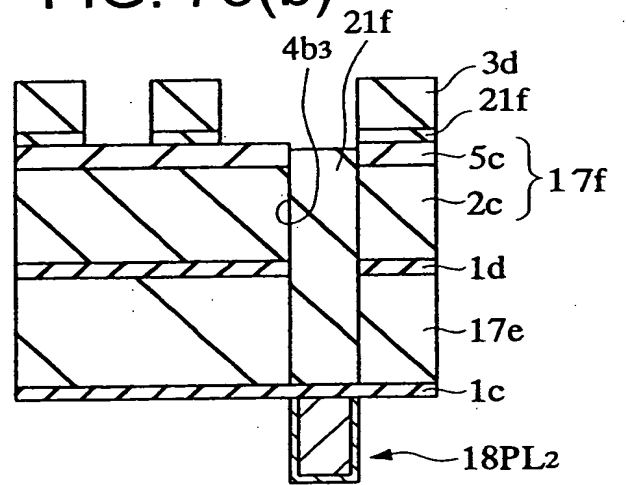


FIG. 76(a)

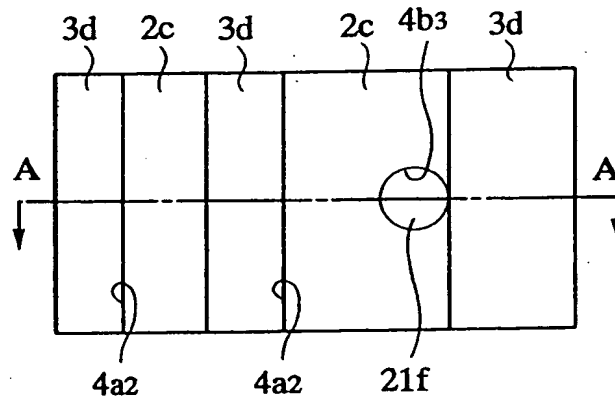
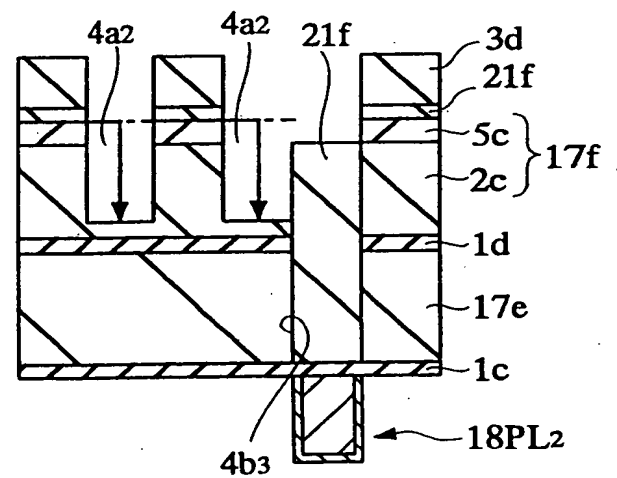


FIG. 76(b)



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FIG. 77(a)

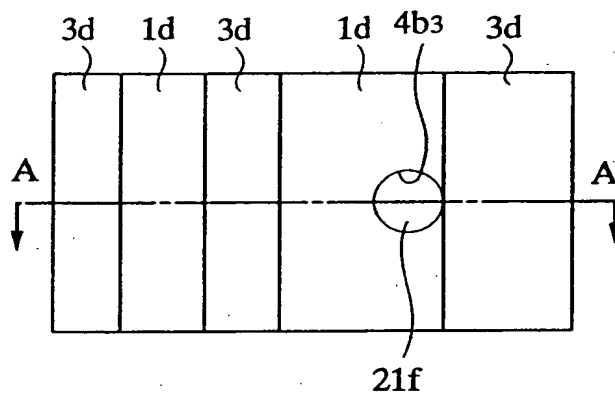


FIG. 77(b)

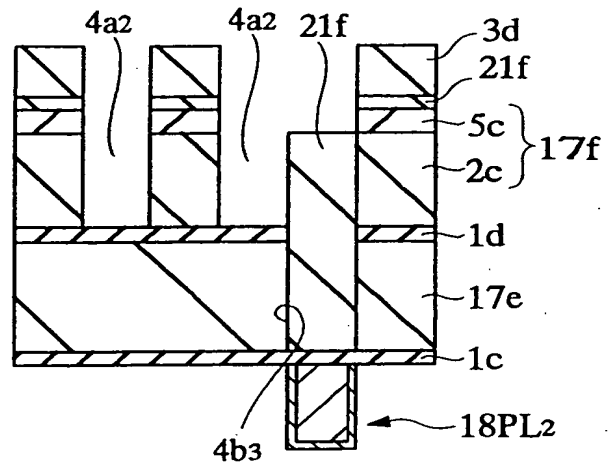


FIG. 78(a)

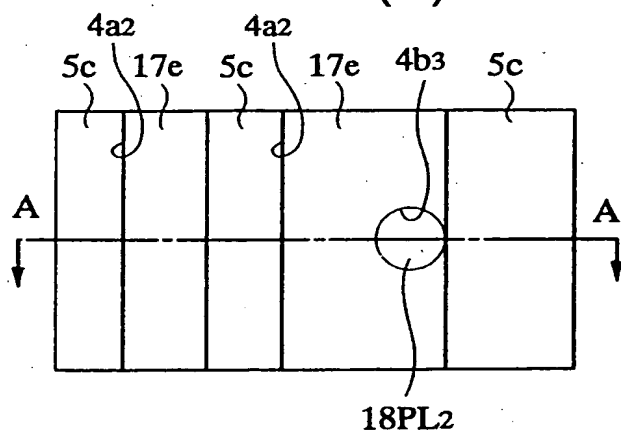
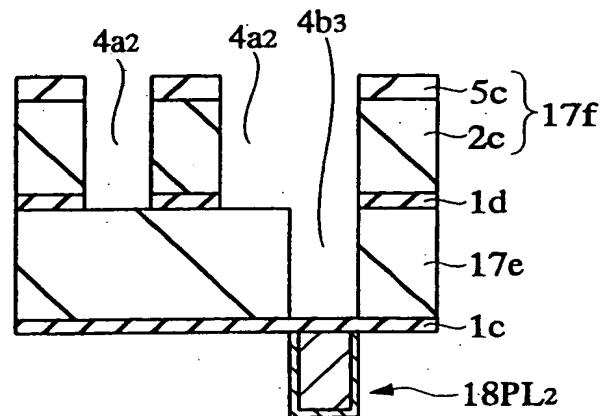


FIG. 78(b)



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FIG. 79(a)

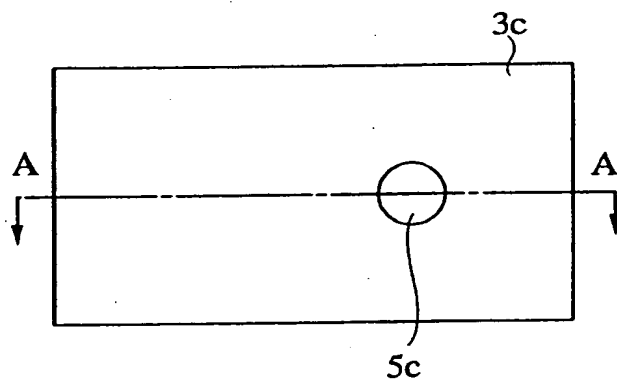


FIG. 79(b)

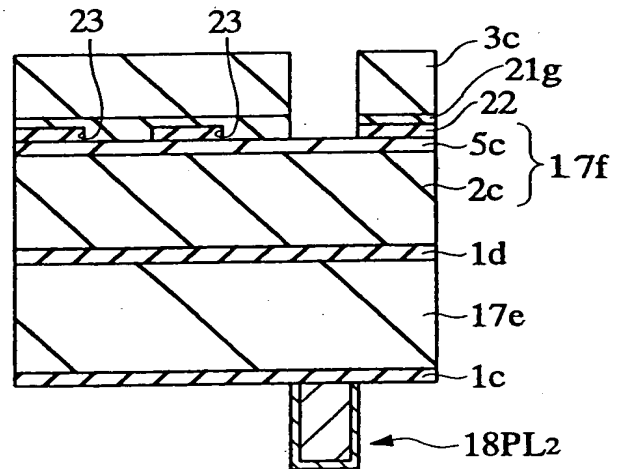


FIG. 80(a)

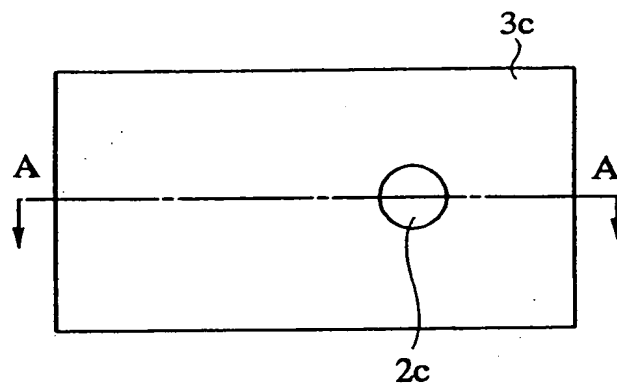
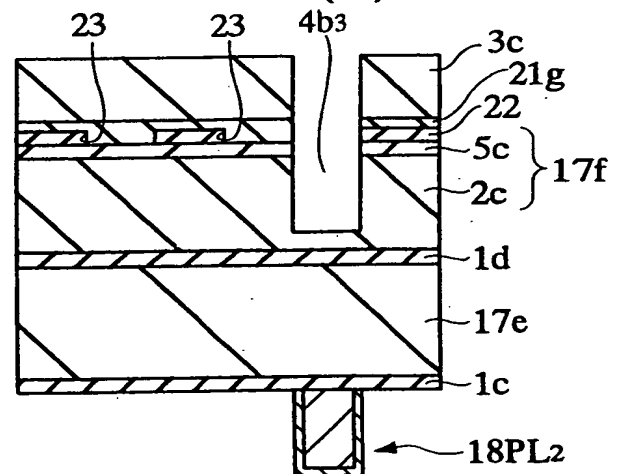


FIG. 80(b)



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FIG. 81(a)

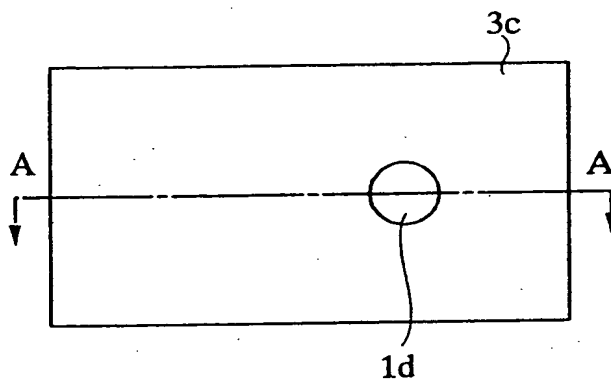


FIG. 81(b)

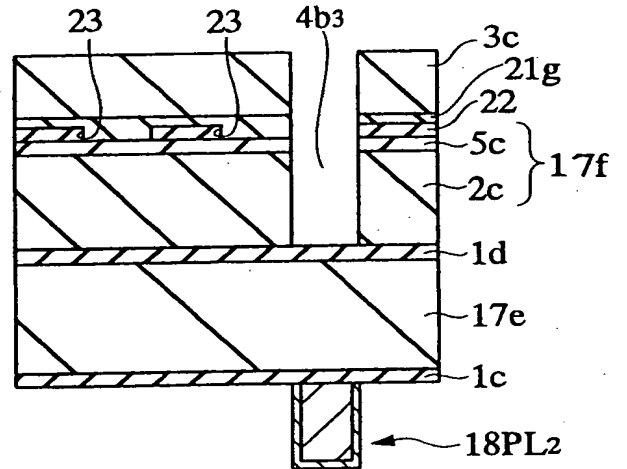


FIG. 82(a)

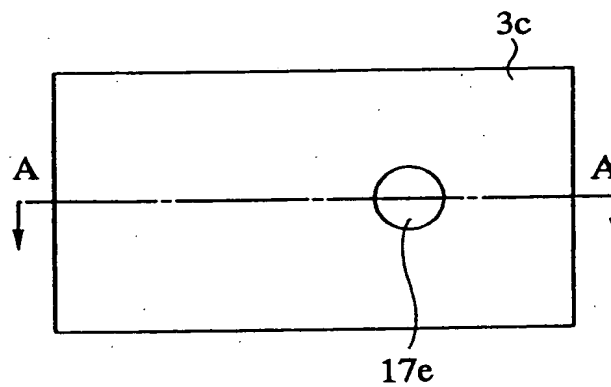
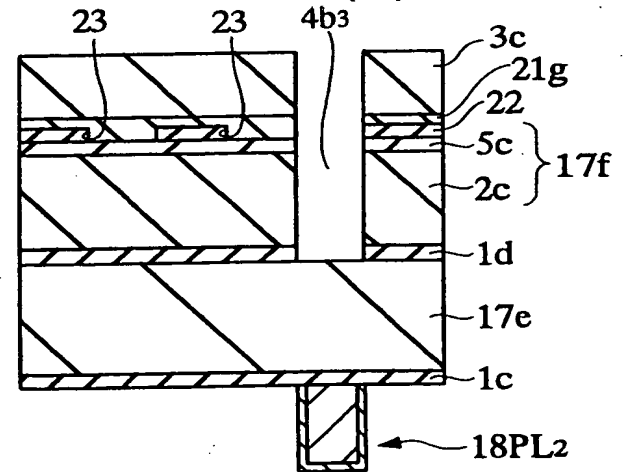


FIG. 82(b)



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FIG. 83(a)

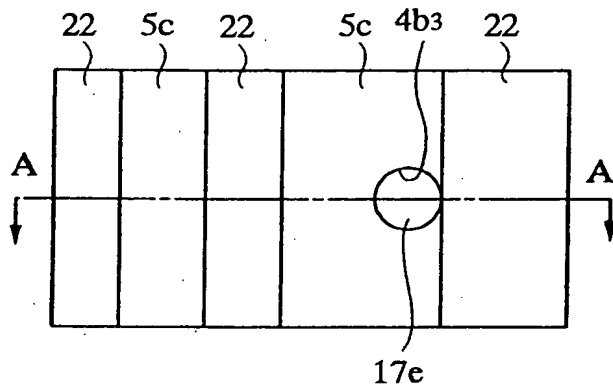


FIG. 83(b)

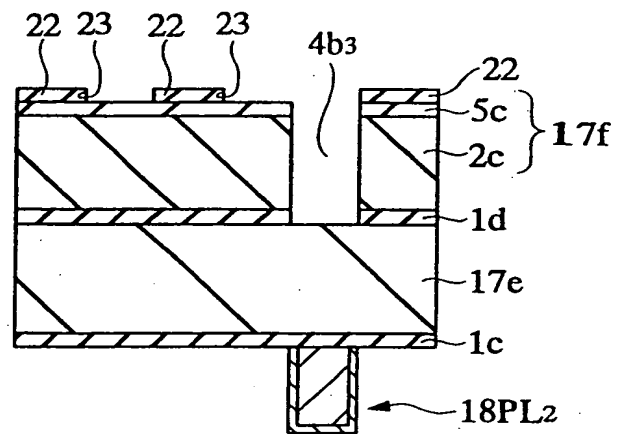


FIG. 84(a)

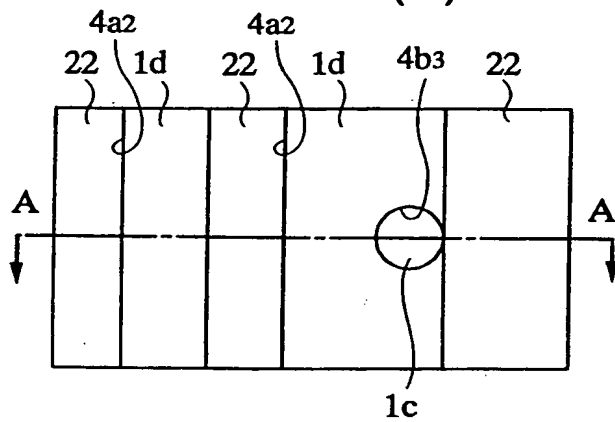
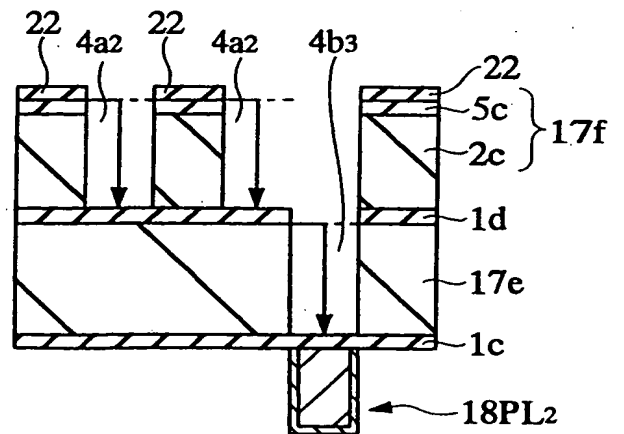


FIG. 84(b)



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FIG. 85(a)

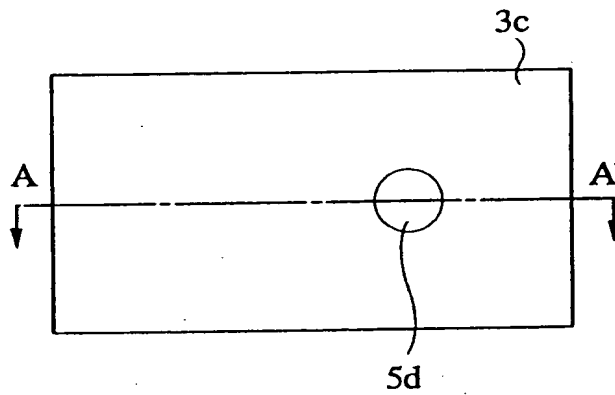


FIG. 85(b)

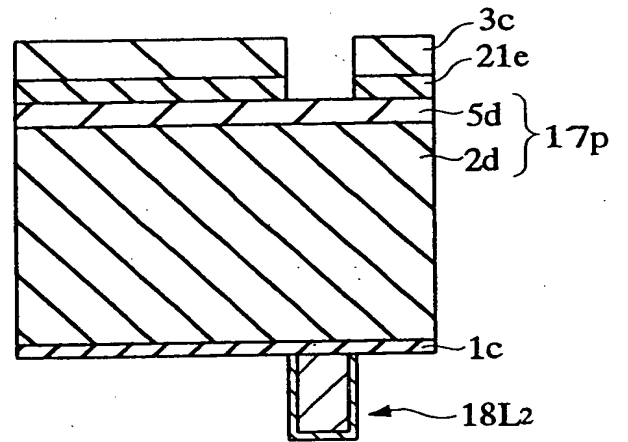


FIG. 86(a)

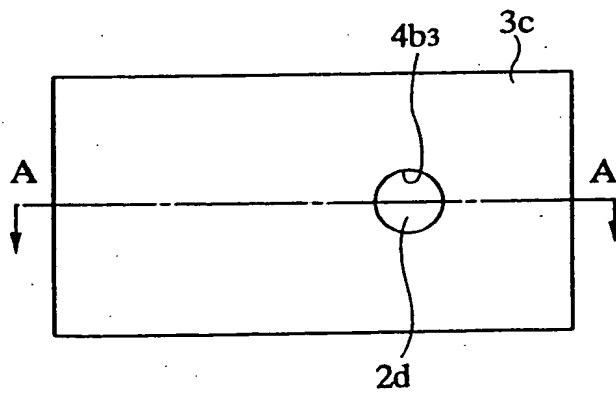


FIG. 86(b)

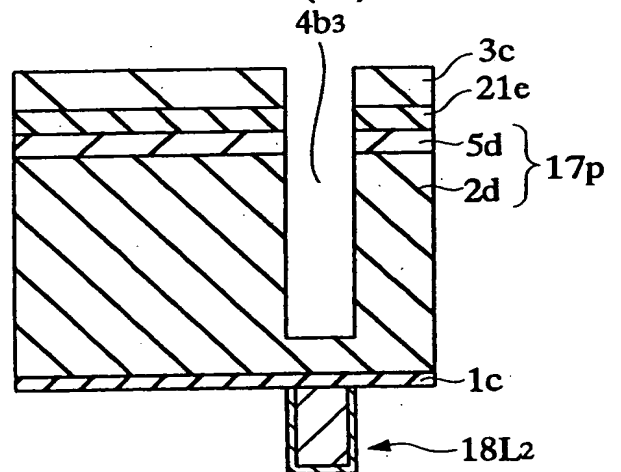




FIG. 87(a)

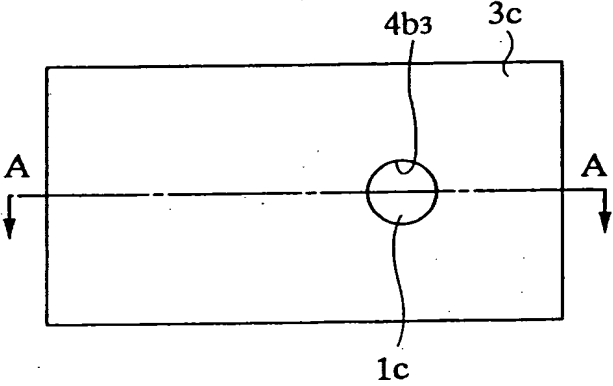


FIG. 87(b)

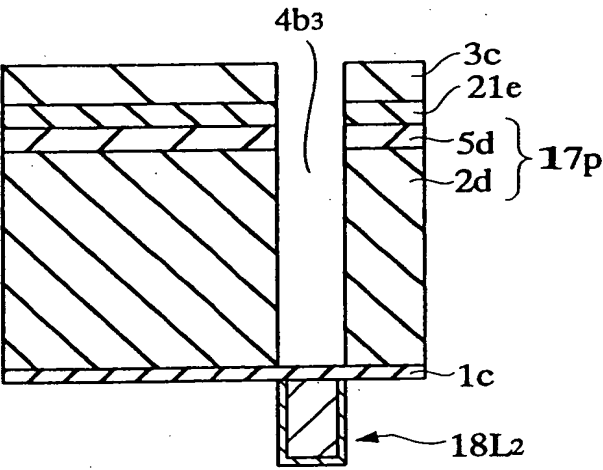


FIG. 88(a)

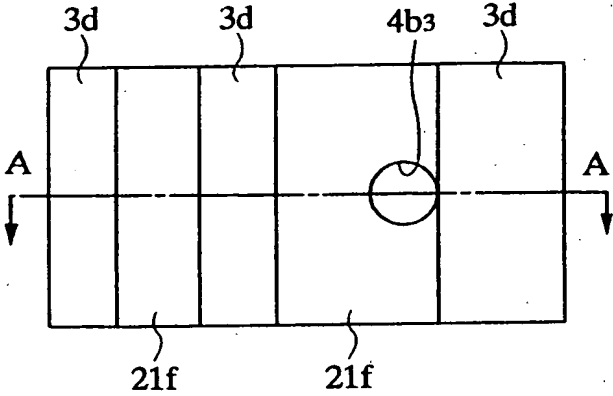


FIG. 88(b)

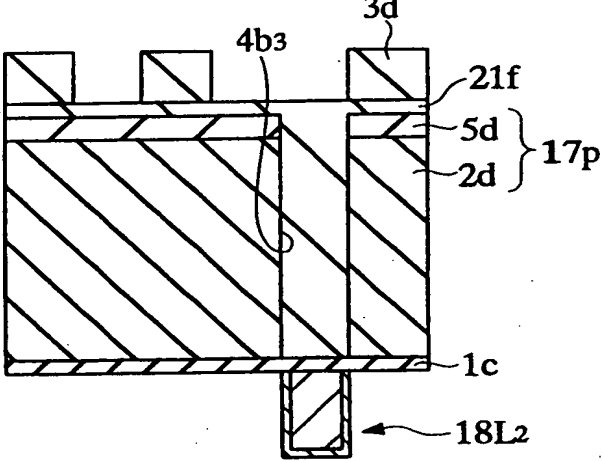


FIG. 89(a)

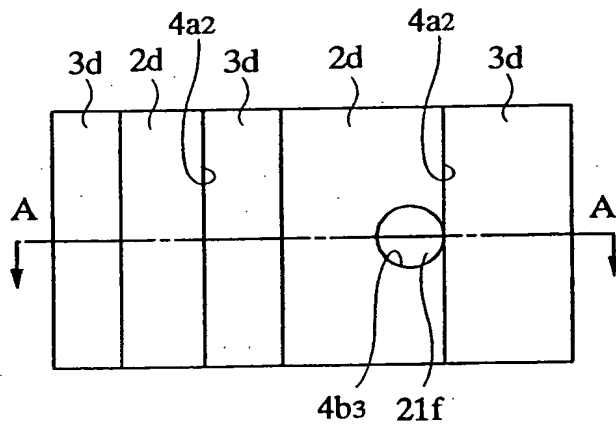


FIG. 89(b)

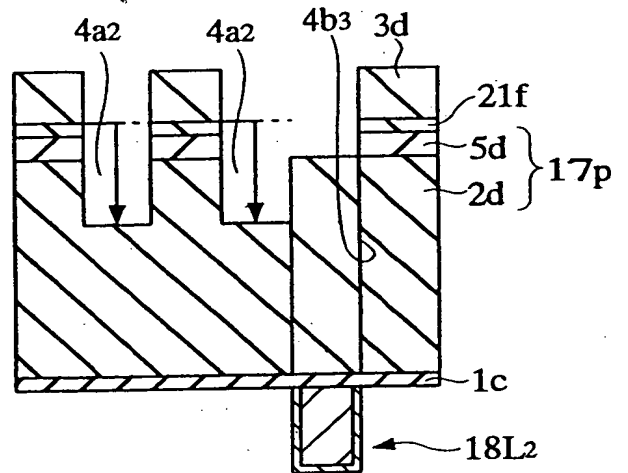


FIG. 90(a)

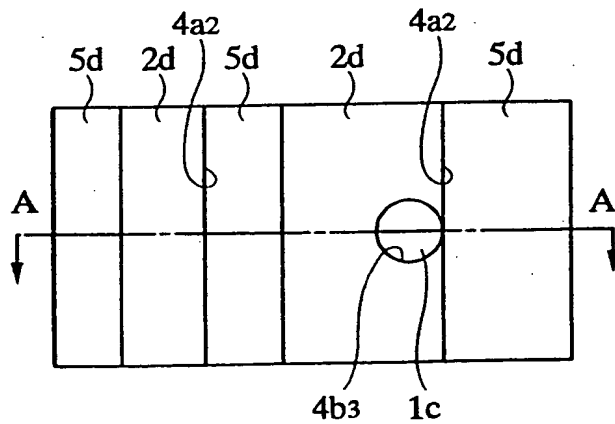
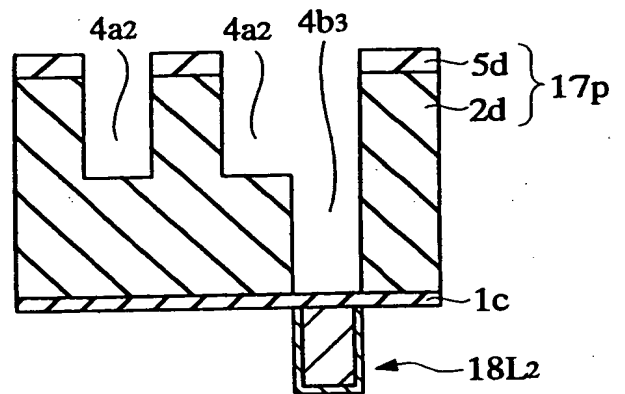


FIG. 90(b)



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FIG. 91(a)

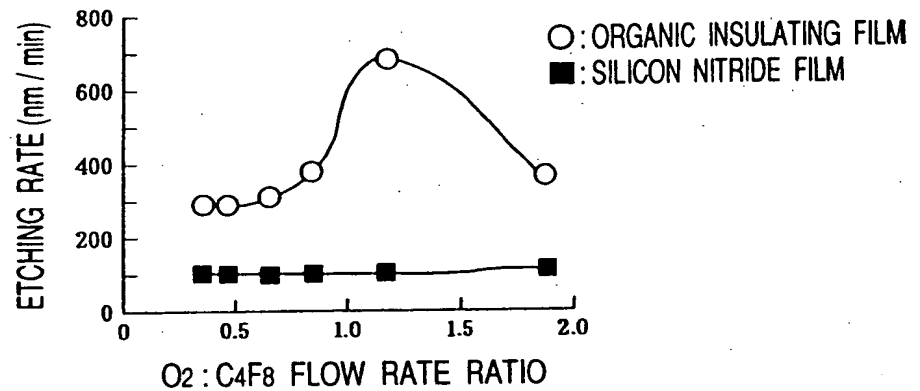


FIG. 91(b)

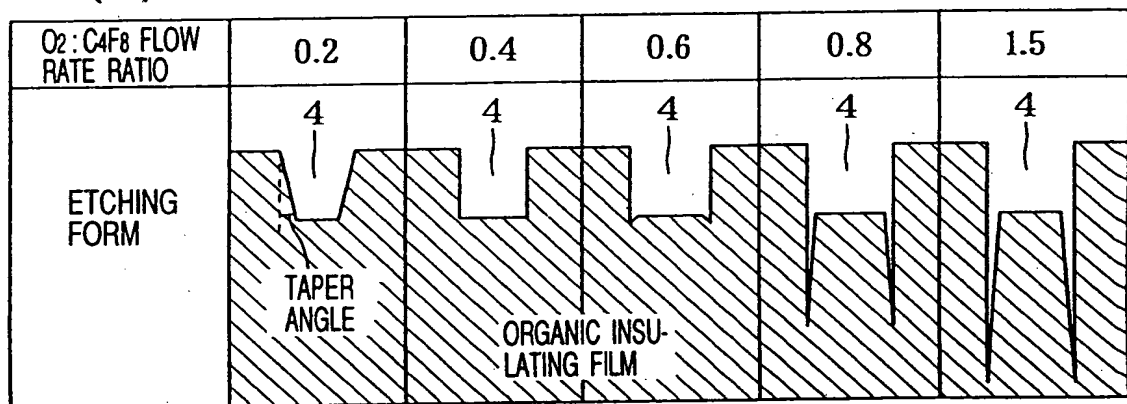
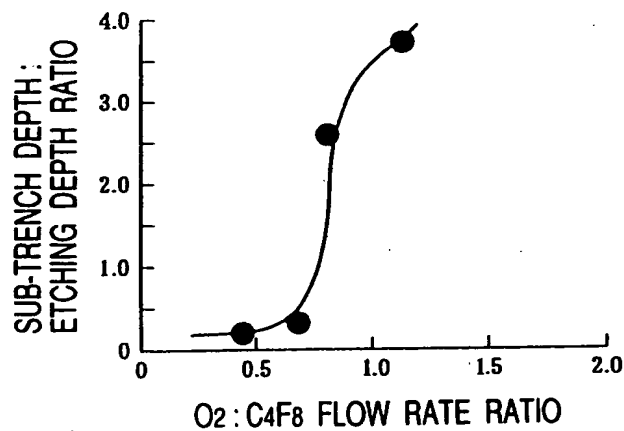


FIG. 91(c)



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FIG. 92(a)

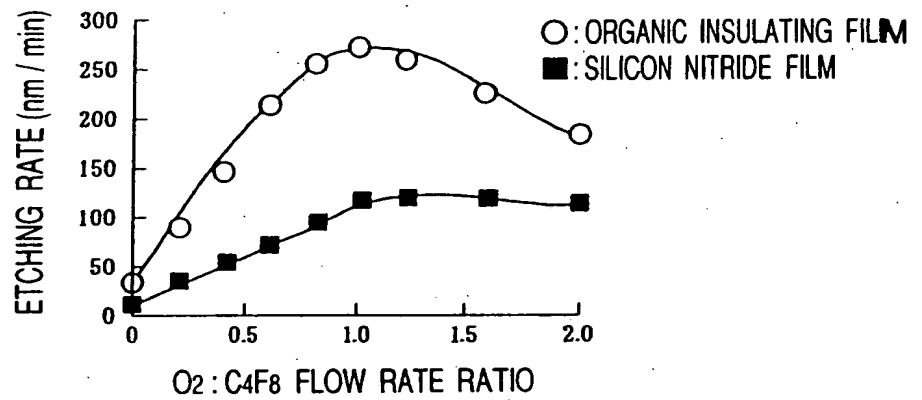


FIG. 92(b)

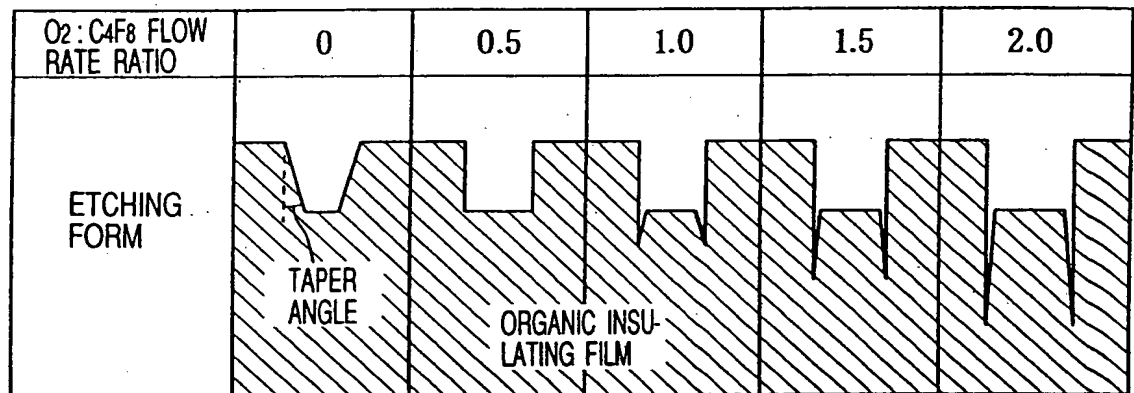
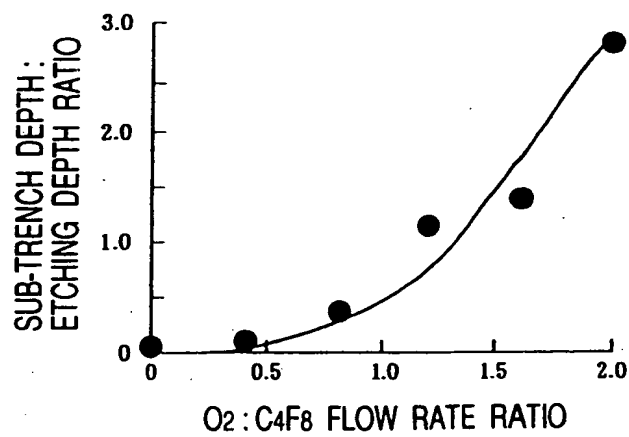


FIG. 92(c)



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FIG. 93(a)

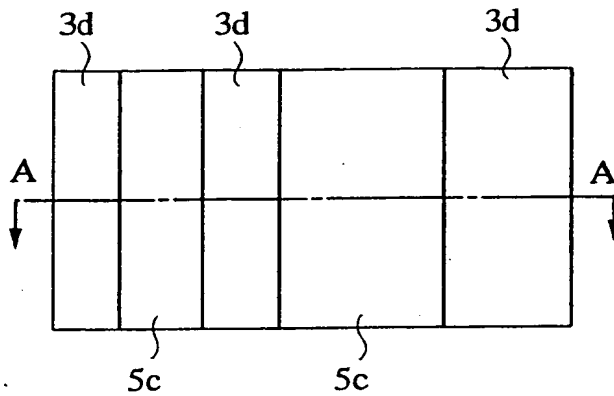


FIG. 93(b)

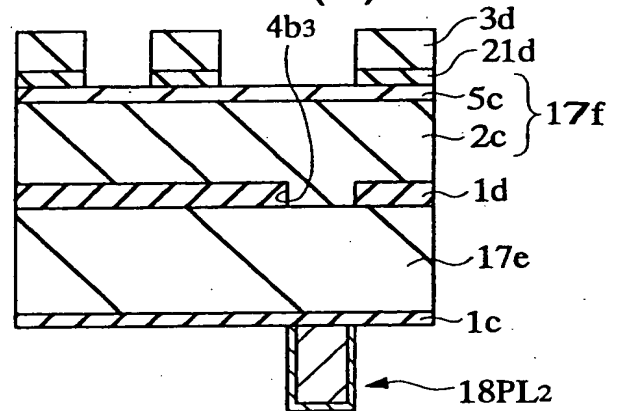


FIG. 94(a)

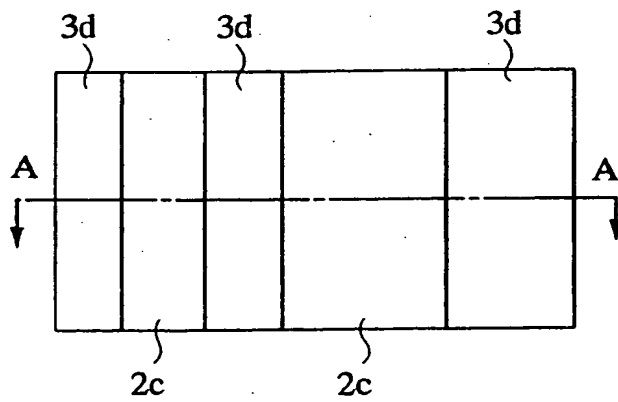
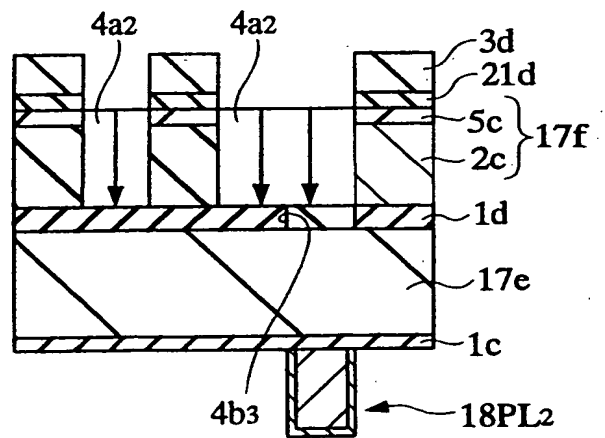


FIG. 94(b)



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FIG. 95(a)

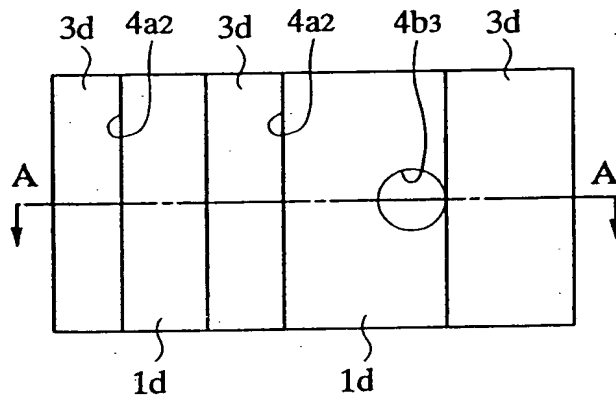


FIG. 95(b)

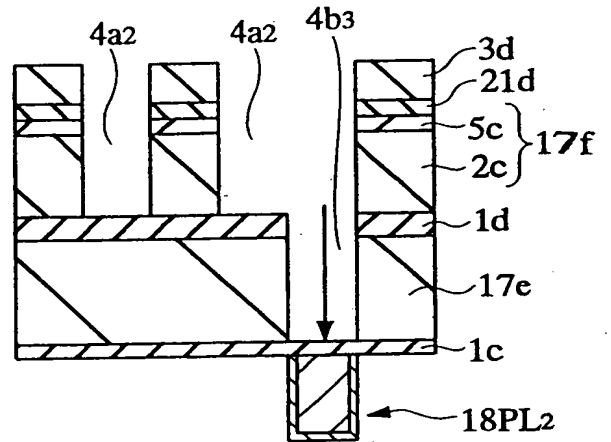


FIG. 96(a)

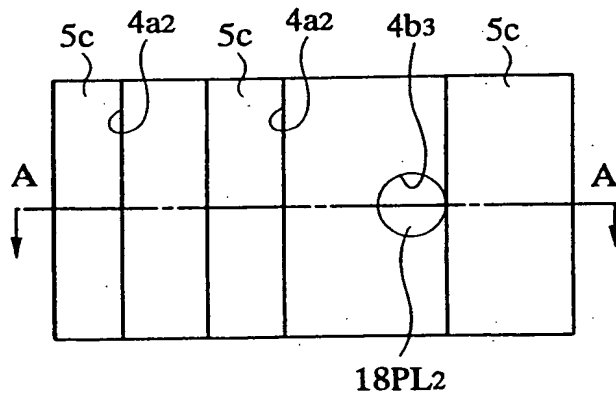


FIG. 96(b)

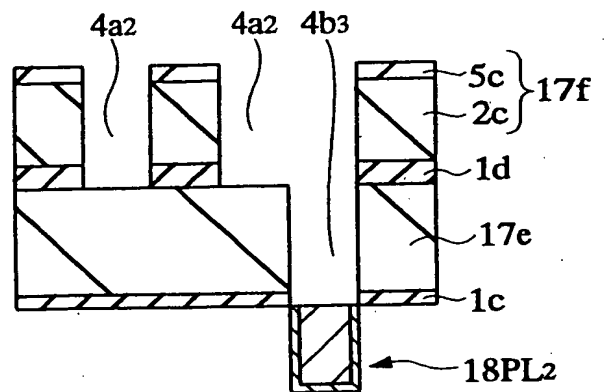


FIG. 97(a)

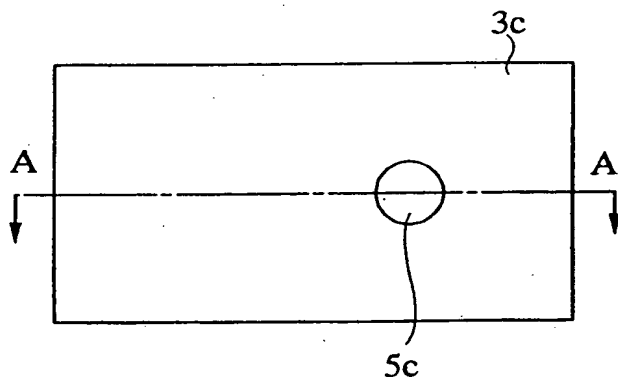
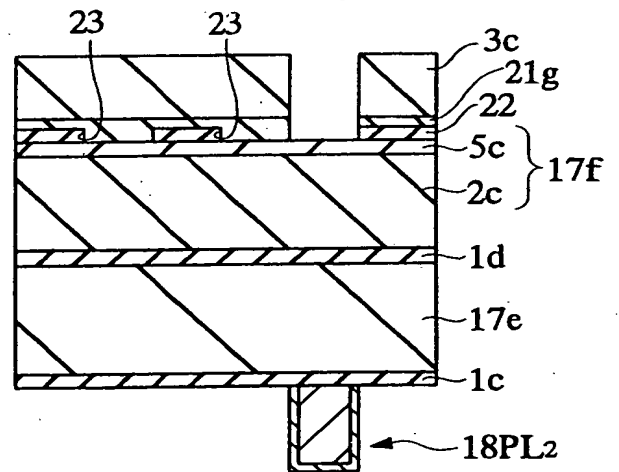


FIG. 97(b)



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FIG. 98(a)

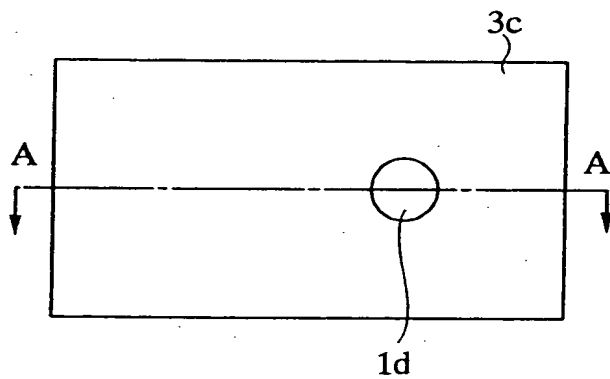


FIG. 98(b)

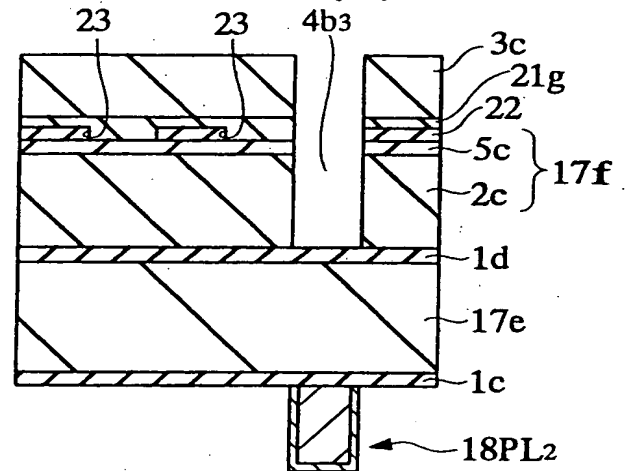


FIG. 99(a)

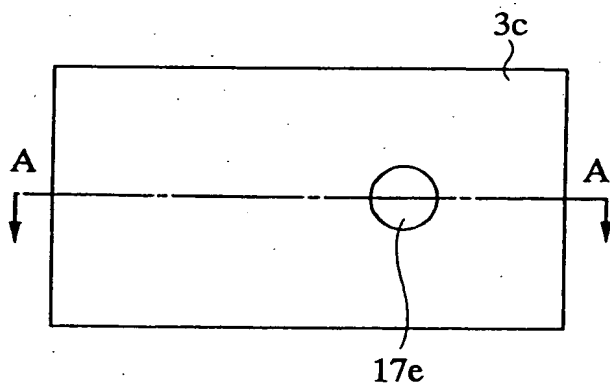


FIG. 99(b)

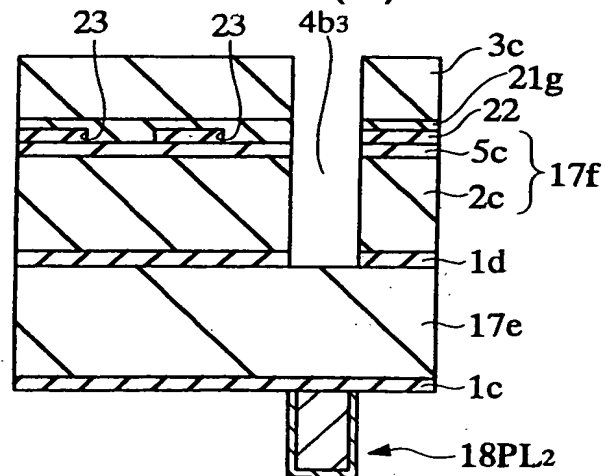




FIG. 100(a)

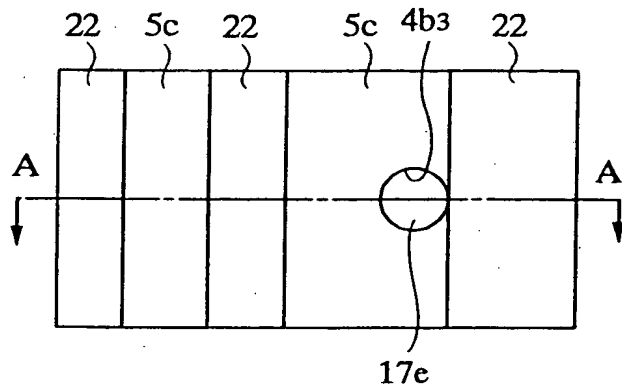


FIG. 100(b)

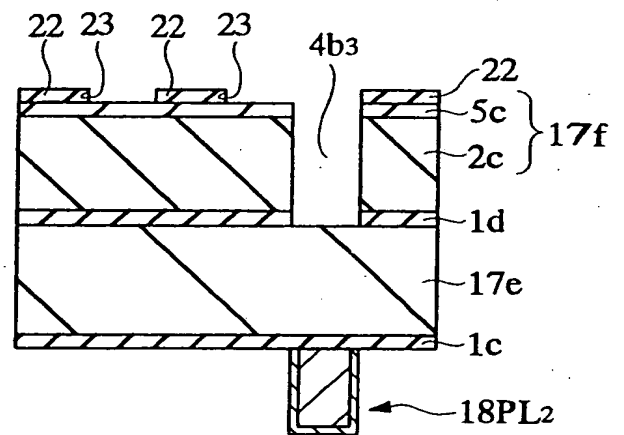


FIG. 101(a)

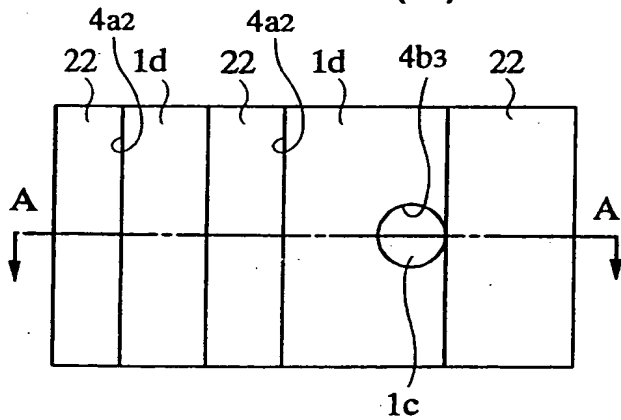
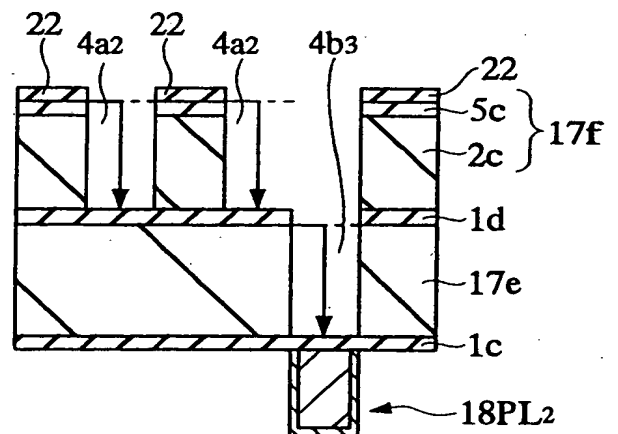
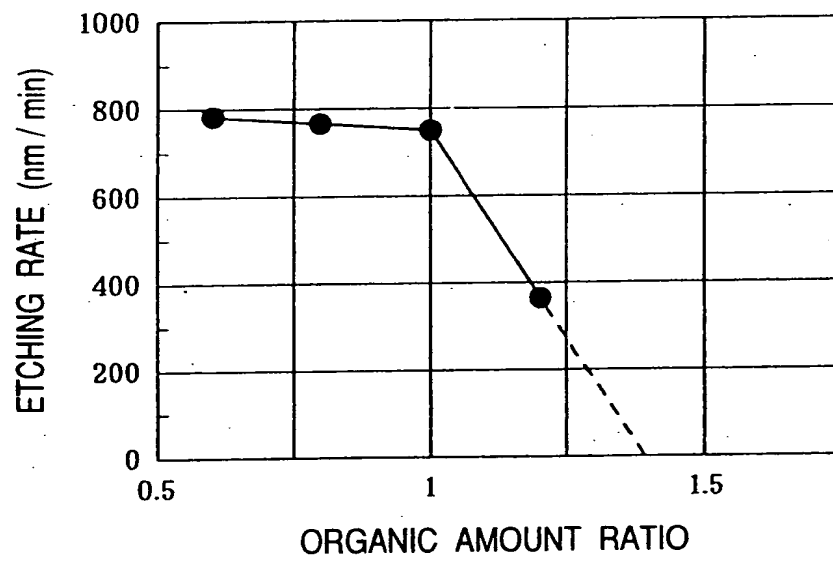


FIG. 101(b)



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*FIG. 102*

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FIG. 103(a)

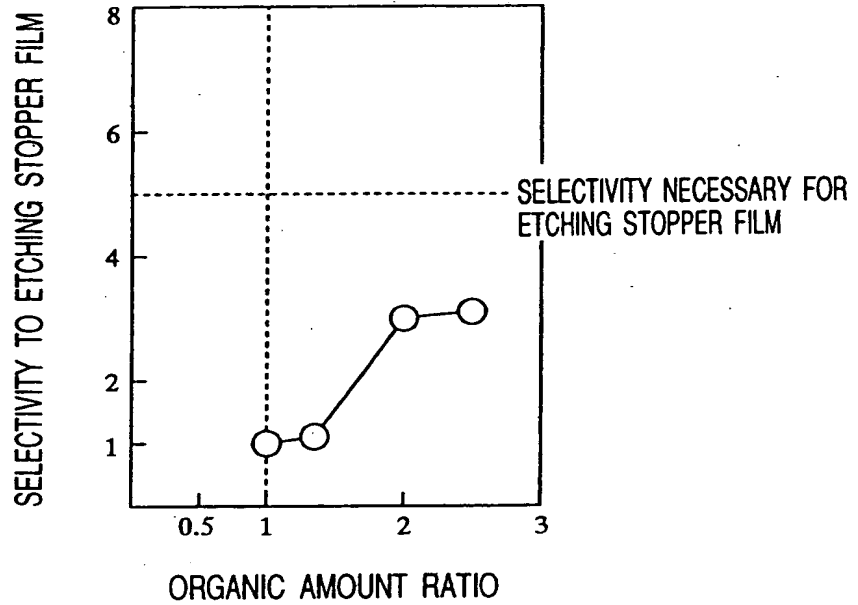


FIG. 103(b)

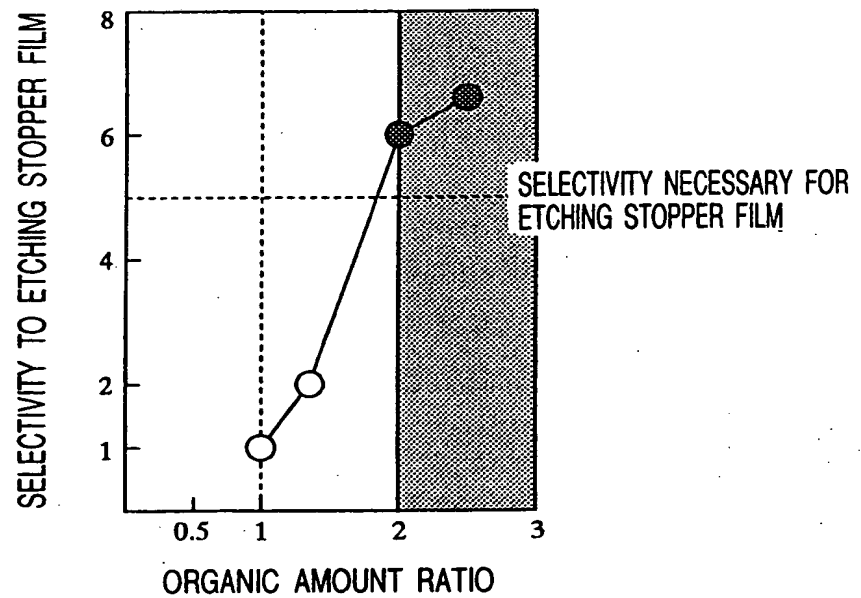


FIG. 104(a)

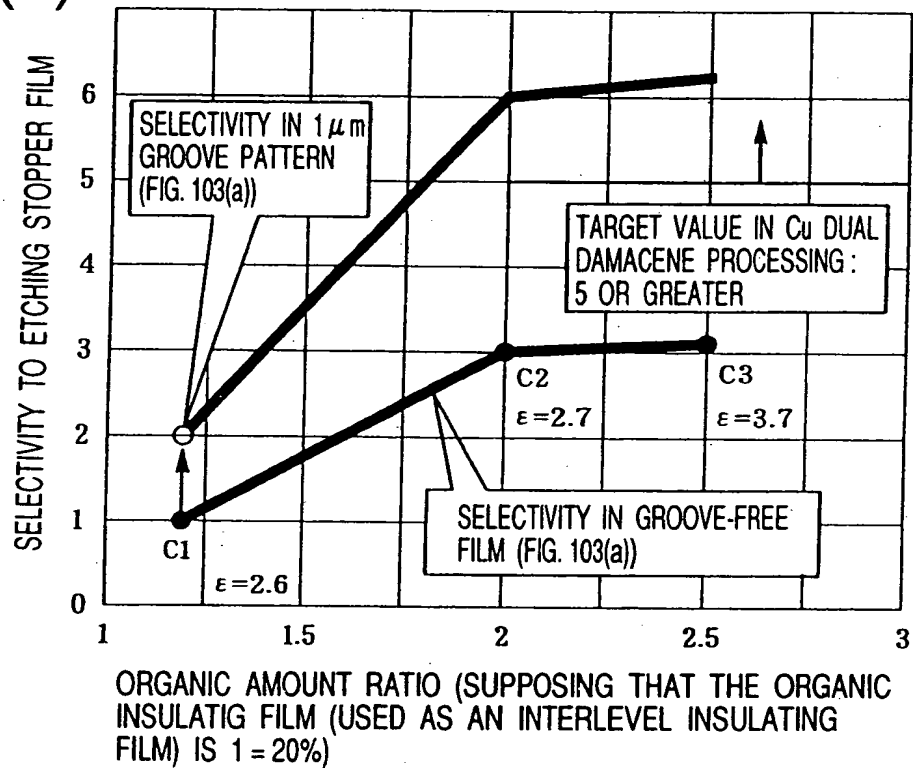
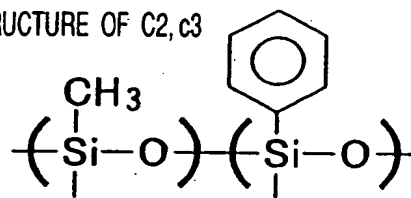
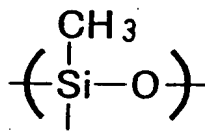


FIG. 104(b)

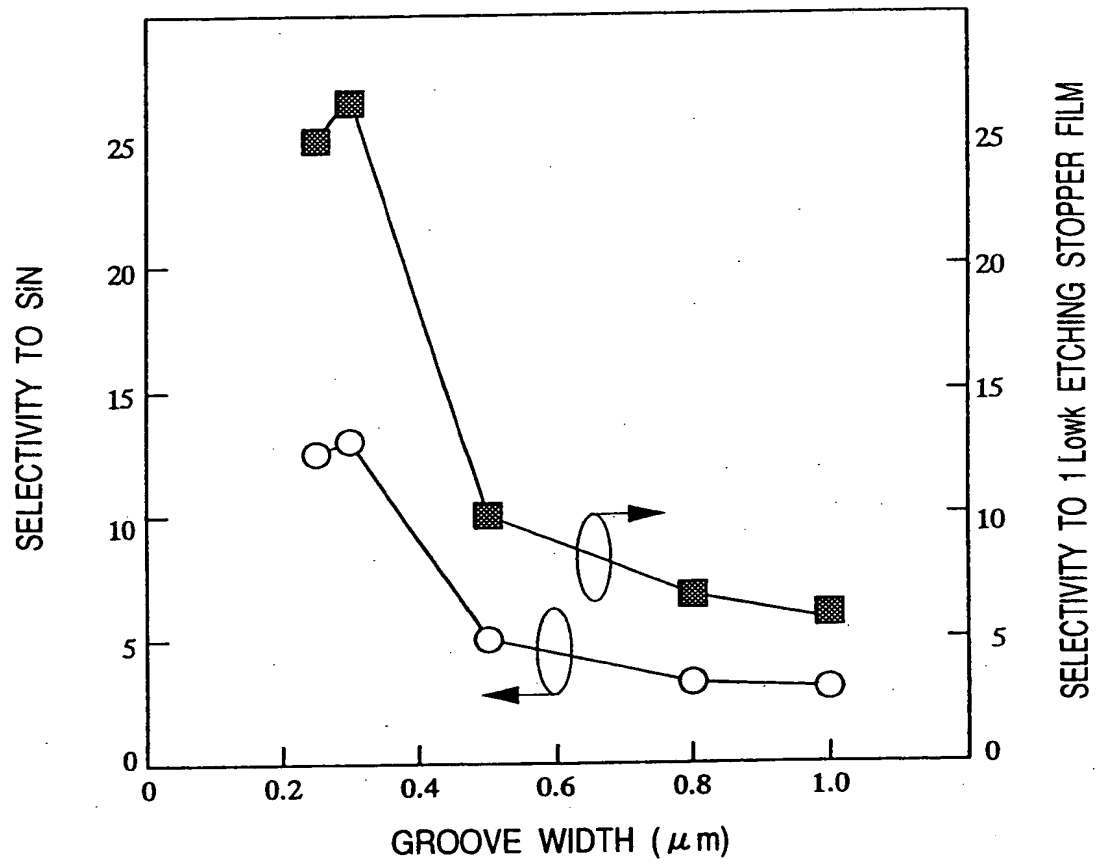
STRUCTURE OF C1

STRUCTURE OF C2, C3



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FIG. 105



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FIG. 106

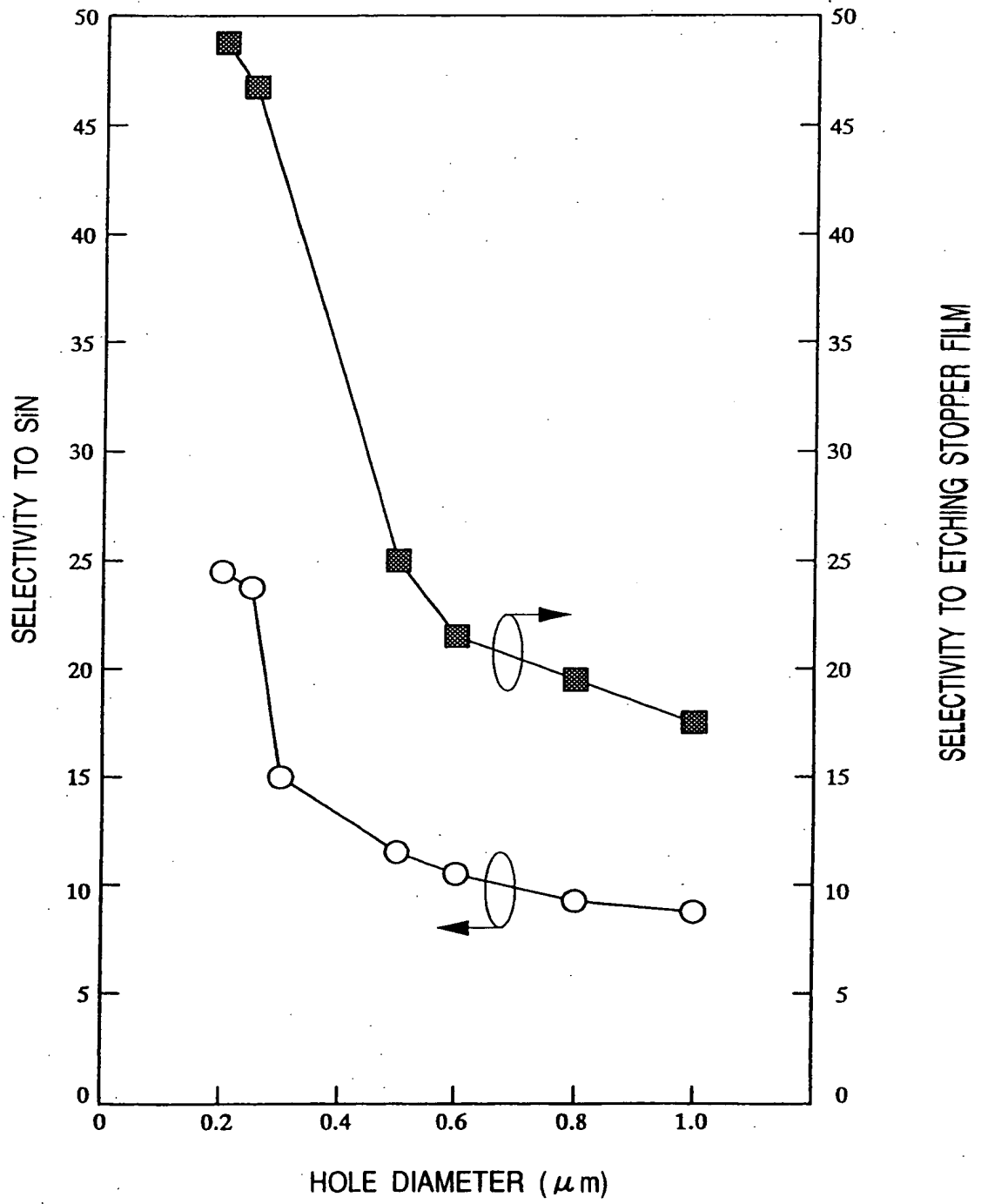


FIG. 107

	ADHESION	SELECTIVITY (TO ORGANIC SOG)	Cu DIFFUSION- PREVENTIVE LEAK PROPERTY	DIELECTRIC CONSTANT
SiN	○	5~10	○	7.0
PTEOS	○	2~3	×	4.2
Blok	△	5~10	△	5.0
NOVEL ETCHING STOPPER FILM	○	5~10	△	2.5~4.0

FIG. 108(a)

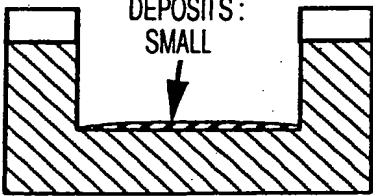
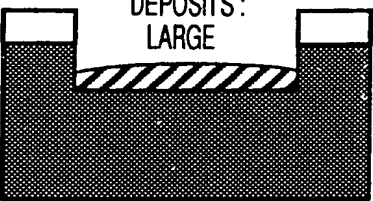
ORGANIC AMOUNT	CF CONSUMPTION RATE*	AMOUNT OF CF DEPOSITS	ETCHING RATE
SMALL (LARGE SiO CONTENT)	HIGH		HIGH
LARGE (SMALL SiO CONTENT)	LOW		LOW

FIG. 108(b)

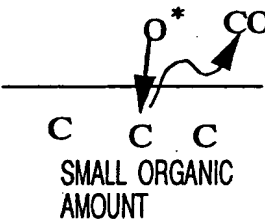
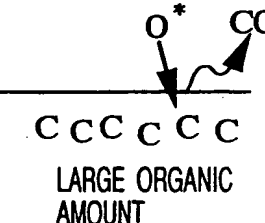
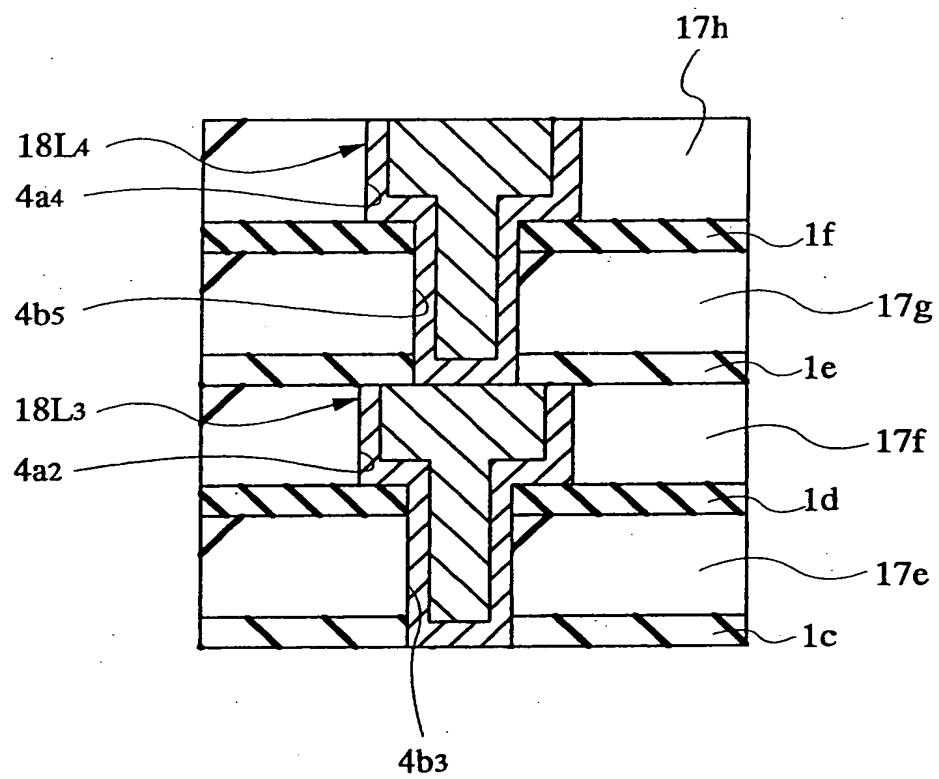
 <p>SMALL ORGANIC AMOUNT</p>	HIGH ETCHING RATE
 <p>LARGE ORGANIC AMOUNT</p>	LOW ETCHING RATE



FIG. 109



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FIG. 110

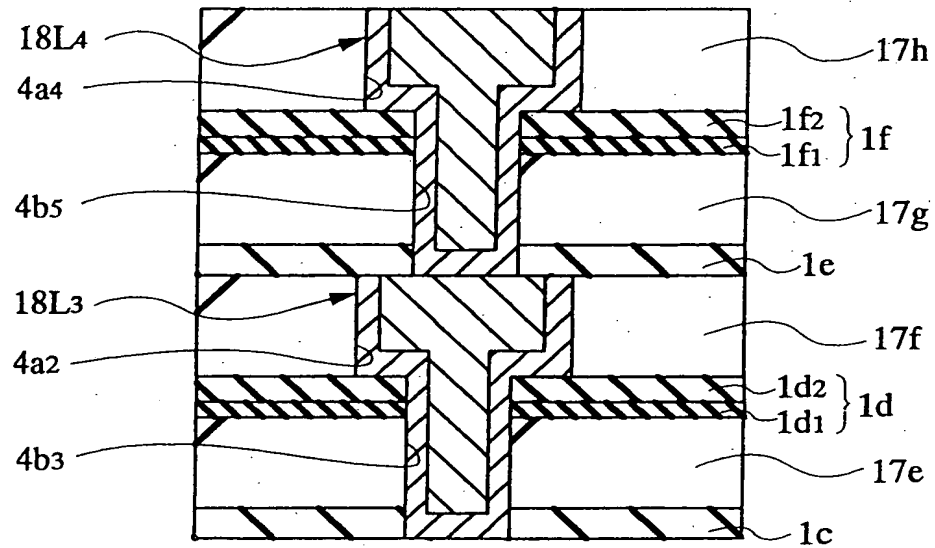
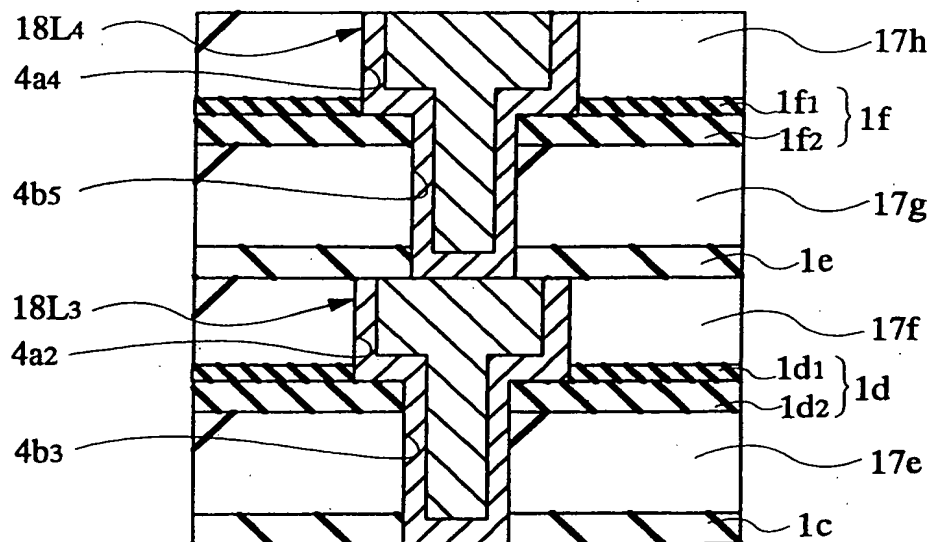


FIG. 111



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FIG. 112(a)

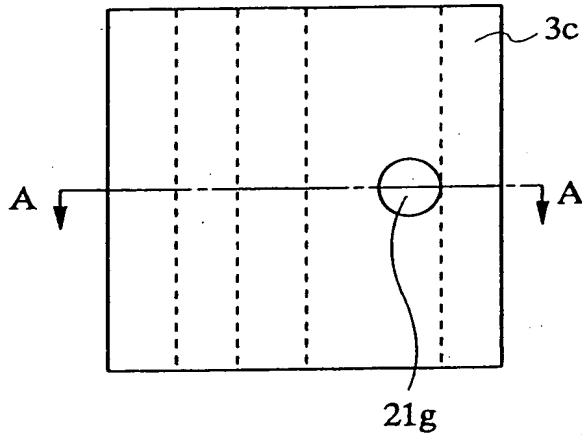


FIG. 112(b)

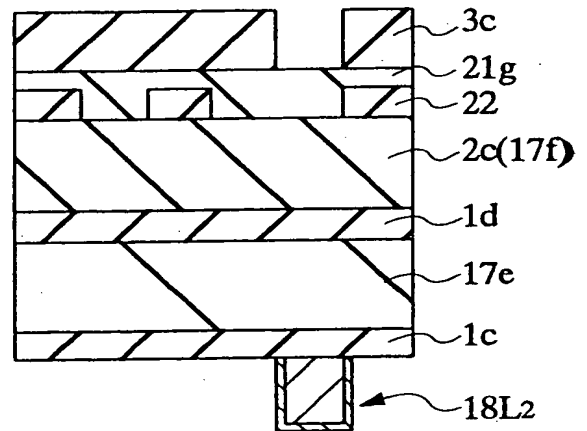


FIG. 113(a)

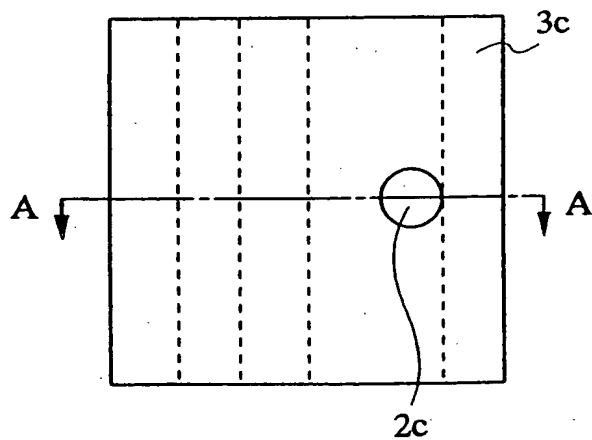


FIG. 113(b)

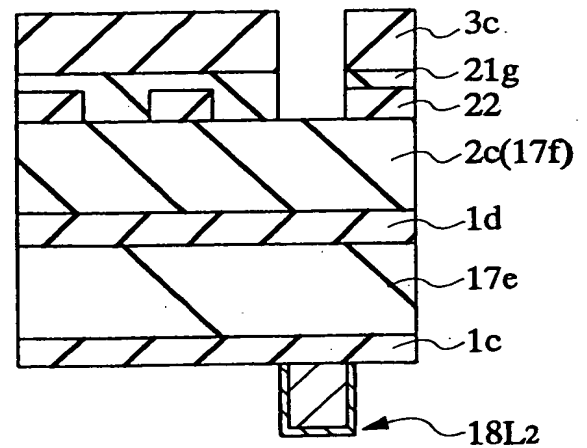


FIG. 114(a)

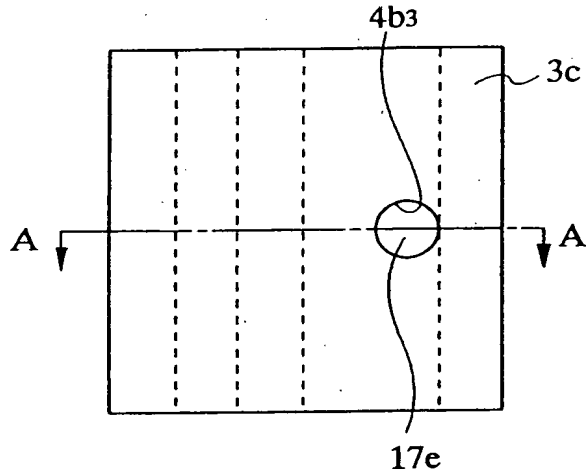


FIG. 114(b)

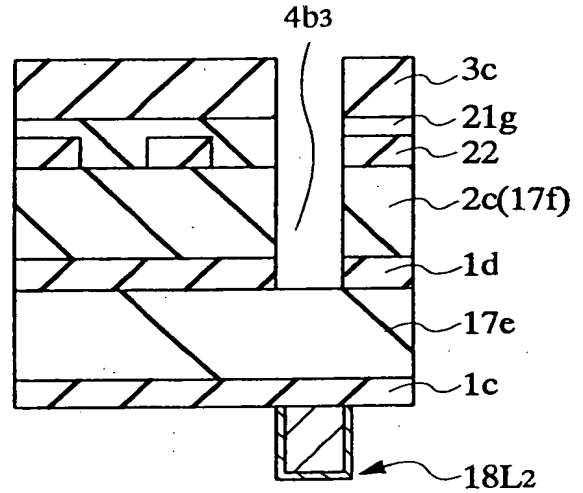


FIG. 115(a)

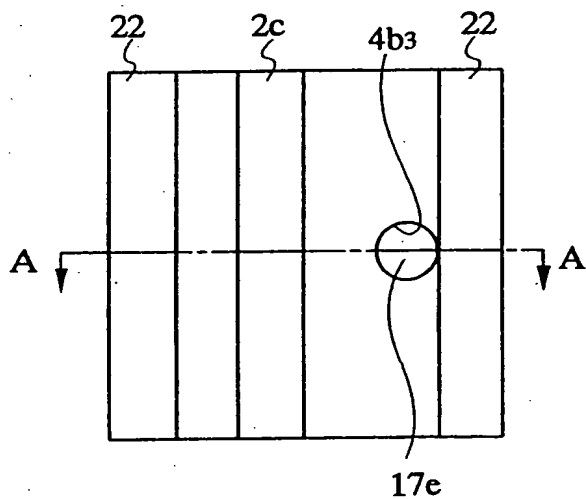


FIG. 115(b)

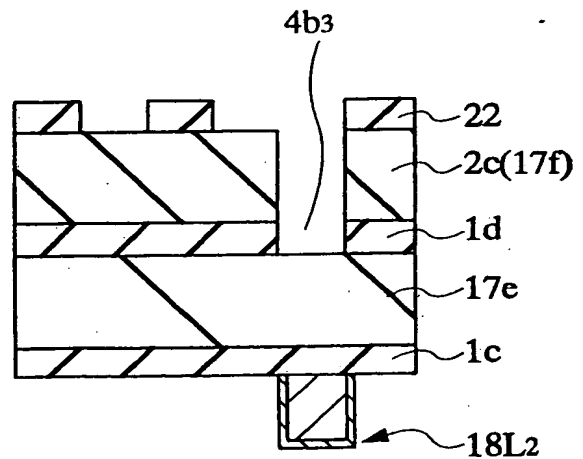


FIG. 116(a)

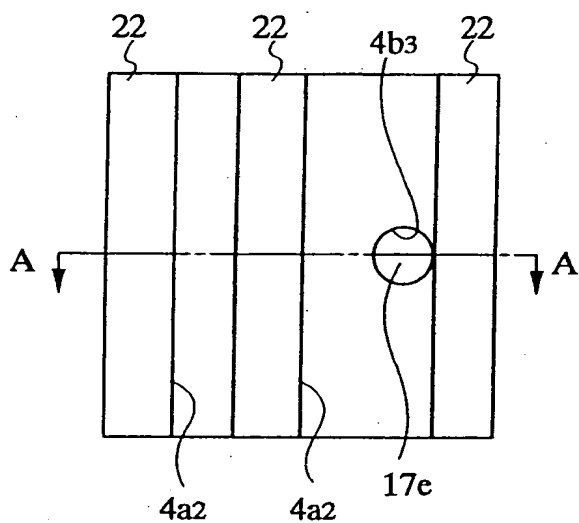


FIG. 116(b)

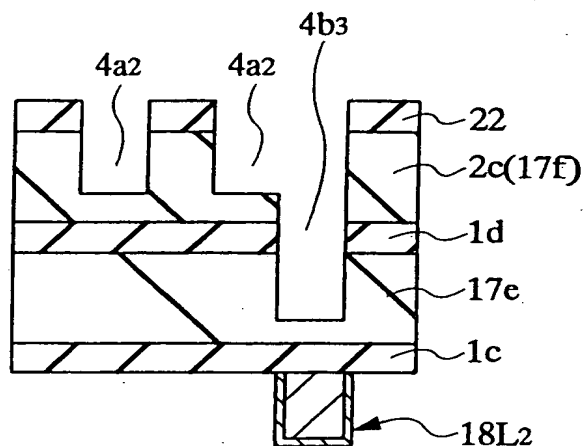


FIG. 117(a)

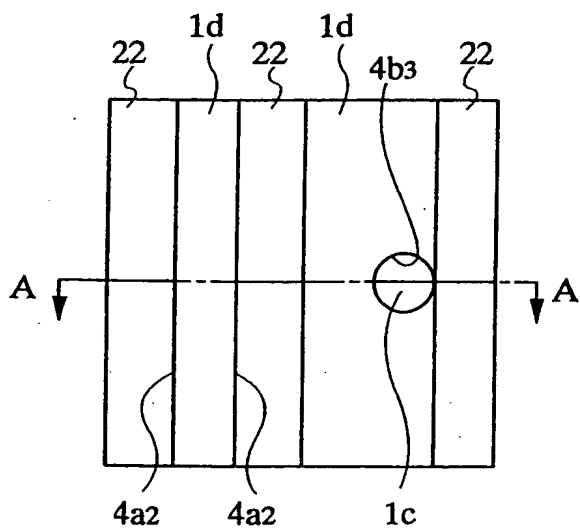


FIG. 117(b)

